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# Opposes the Use of Priorities on Paper

## Over-All Committee Believes Paper Division of WPB Can Handle Situation Under M-241—J. A. Krug Congratulates Paper Industry — Amended Newsprint Order L-240 Aids the Small Publishers.

WASHINGTON, D. C., August 31, 1945—Members of the Over-all Paper Industry Advisory Committee went on record yesterday as being opposed to the use of priorities on paper, paperboard and paper products in the belief that the War Production Board Paper Division can continue handling the situation satisfactorily under the controls of the Paper and Paperboard Conservation Order (M-241), WPB announced today.

The committee also decided that the continuation, modification or revocation of the Paper and Paperboard Simplification and Standardization Order (L-120) should be left to the best judgment of the WPB Paper Division. This attitude was expressed after a lengthy discussion of the advantages and disadvantages of any change in the present order, which limits specifications and weights of virtually all types of paper save wrapping paper, as a wartime conservation measure.

J. A. Krug, WPB Chairman, congratulated and thanked the paper industry for its accomplishments and cooperation in meeting unprecedented wartime production demands.

### All Done Without Priorities

Pointing out that the paper manufacturing industry had operated during more than two years of war without the use of priorities and without compliance procedures, members of the committee recommended that action be taken to secure the exclusion of paper from provisions of PR-28, under which the new priority CC ratings designed to meet certain industrial and civilian emergencies are issued. The use of such priorities, members claimed, would not work equitably, in which case chaotic situations would result. The committee expressed the opinion that the directive powers of M-241, supplemented by industrial cooperation in meeting governmental and essential or emergency requirements, were adequate to meet all needs that would arise.

WPB officials said that in any event both military requirements and civilian essential or emergency requirements would have to be met by the industry voluntarily or by special directions from the Government.

Expressing his thanks to the paper industry for its cooperation, Benton R. Cancell, director of WPB's Forest Products Bureau, said the industry itself would soon have to take over and follow the path to free private enterprise and full employment if a speedy transition and conversion were to be effected. He added, however, that the industry was literally not yet out of the woods because of the expected loss of prisoner-of-war woodcutters and the delay in getting skilled civilian woodcutters back into the woods. The necessity of caring for and conserving our forests was also emphasized.

Asserting that paper and paper products would soon reach the highest standards ever known, Rex Hovey, former director of the Paper Division, said that the United States was using about 300 pounds of paper per capita, the highest rate in world consumption. He added that continuing and new needs had to be met because paper will play a vital part in social and economic future developments. To this end, he emphasized the desirability of continuing the collection and compilation of all available data. He further emphasized the necessity of mechanizing and modernizing all segments of the pulpwood, pulp and paper industry. Establishment of a comprehensive pulpwood procurement industry and adequate statistics therefrom would avoid reliance on periodic wood cutting by independent farmers, Mr. Hovey said. Government officials said that steps for the continued collection of facts and figures on the industry were being taken to insure adequate future statistics.

In a special plea, all industries were asked by Government transportation experts to make every effort to load and unload all freight cars immediately and return them to service.

Grant Richardson, director of the Paper Division and presiding officer, thanked the members for their advice and assistance on vital paper problems during the war period, and added that the goal of the division now was to carry on through the transition period from governmental production support to peacetime free competition without loss of time.

### Amends Newsprint Order

To insure an equitable distribution of newsprint, still in short supply, the War Production Board today issued an amendment to its Newspaper Limitation Order (L-240) extending the control under that order to include all users of newsprint. In doing so, consumption quotas of newsprint were established for users other than newspaper publishers, generally equivalent to their rate of consumption permitted under their respective orders at the time of their

*(Continued on page 12)*

# Chicago Encouraged At Conversion Speed

## Removal of Restrictions and Controls Considered Favorable Signs But Lack of Uniformity Is Confusing — Paper Association Holds Golf Outing — Awards Paper Salvaging Prizes — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 4, 1945—The Chicago paper industry was heartened this week to learn that the wood pulp allocation industry advisory committee had recommended revocation of M-93, which would permit mills much more discretion as to disposal of pulp manufactured. Some cheer was likewise found in the removal of restrictions on use of idle paper machines and the possibility that the requirement for rag content makers of maintaining a reserve production of 35% to insure government supply, while renewed, might soon be relaxed somewhat.

There was some disturbance over the lack of uniformity in abandonment of some controls and continuance of others which caused some irregularities. For example, as one mill representative pointed out, there are changes permitting printers to radically change their end-use requirements but no corresponding revocations permitting the paper industry to supply the goods.

All in all, however, the industry seemed pleased over the speed with which reconversion was going ahead although there continued to be grave concern over the magnitude of the squeeze which the industry might have to face in behalf of the current "hold the line" policies in Washington.

No changes have been reported as yet in current stocks and in the price situation. All lines report a much better feeling both at the mill and consumer level.

### Midland Treasurer Announced

The newly formed Midland Paper Company which is carrying on a well established name after a period of several years, recently announced the selection of L. A. Neumann as its treasurer. Mr. Neumann is well known in graphic arts association activities and is vice president of the Manz Corporation, color printing and lithographing house, president of the M & L Typesetting Company and an officer of the Thomas Paper Stock Company.

C. G. Foster, formerly with the J. W. Butler Paper Company, is the president of the new firm which is being enthusiastically received in paper circles.

### Association Outing Attracts 350

The Chicago Paper Association held a most successful golf outing at the Elmhurst Country Club on August 28 with more than 350 members and guests present to make the day of history making proportions. Unusually good weather and the informality of the program attracted men from all branches of the industry, a tribute to the arrangements perfected by a committee composed of J. S. Druth, Chippewa Paper Products Company, chairman; Walter Schulman, Levin Brothers Paper Company; Maurice Kay, Randolph Paper & Bag Company; William Chukerman of J. Chukerman & Sons and W. J. Shapland of the Fred Rentz Paper Company.

Prizes were awarded not only to golfers but to non-golfers and to winners of lucky door prize numbers. These were given out at the evening informal dinner presided over by William Knox of Knox and Schneider president of the Association. Prizes were awarded by Mr. Druth as chairman of arrangements for the day. No speaking program was arranged but the huge group of jobbers, converters and mill men heard two fine impromptu talks from Sam Weil of Joseph Weil Company and J. E. Levin Brothers Paper Company. Both gave their characteristically sincere tribute to the value of organization and to the immensity of the work cut out for all branches of the industry in the post-war days that are now an actuality.

### Change Firm Name

Parker, Thomas & Tucker have changed the name of the firm to Parker, Schmidt, & Tucker Paper Company, an action which simply substitutes the name "Schmidt" for Thomas and which in no way changes the personnel of the organization. Edwin B. Schmidt is vice president of the company and son of E. J. Schmidt who became a partner of the firm two years after the original partnership was perfected. The change thus only makes official a partnership relationship which has existed for all but two years of the life of the well known jobber company.

### Award Salvage Prizes

The State Street Council, Chicago's great promotional organization for State street stores, this week awarded complete school outfits to two youngsters who won the prizes as champion summer vacation waste paper salvagers. The girl, Lois Morgan, 13, collected 36,762 pounds of paper while the boy, James Calder, 12, collected 64,385 pounds for one playground school unit. Between them, they collected a total of about 50 tons of paper. Certificates were awarded them at a banquet at the Stevens Hotel where leading waste paper collectors from all parts of the city were also given special prizes. Meanwhile, reports that the waste paper salvage program might end this month were branded as erroneous by John R. Robinson, chairman of the newspaper salvage drive committee. Rather is there a likelihood that it will continue far on into the fall because of the shortage of raw materials in the mills in this area.

### Salesmen Meet Again September 10

The western division of the Salesmens Association of the Paper Industry held an informal session on August 27, plans to hold no meeting September 3 because of Labor Day and will convene again on September 10 with plenty of ideas for an unusually interesting series of open meetings when, as "Pat" Patterson expresses it, "things get going again".

## Costello Joins Plastic Papers

CHICAGO, Ill., August 29, 1945—Executive sales offices of Plastic Papers Company, manufacturers of converted paper and plastic packaging specialties, will be located at 188 West Randolph Street, Chicago, Illinois, with Richard E. Costello as sales manager. Since 1928 Mr. Costello has been active in both the fine and coarse paper conversion industry; originally with Oxford Filing Supply Co., Brooklyn, New York.

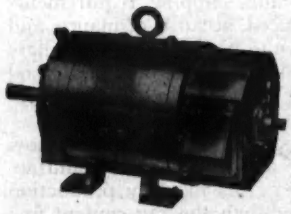
# To Men Who Know Motors

## . . . we could end our message here!

To men who know motors, a picture like this is worth the proverbial ten thousand words. It speaks with convincing eloquence of craftsmanship to which any motor builder could point with pride.

If you visit Star's modern plant, you'll see scores of examples of the same painstaking craftsmanship that pays off in outstanding performance for Star customers.

Star not only builds motors well, but also takes leadership in design. Star pioneered ball bearing motors . . . led in welded steel construction . . . developed the famed Star Built-in Magnetic Disc Brake for motors . . . pioneered in the field of gear-motors.



Integral HP Motor for Direct Current

Whether you need special or standard motors, ⅛ to 200 H.P., it will pay to learn why so many critical buyers specify "Star". Some standard motors are ready for early delivery. Star Electric Motors Co., 200 Bloomfield Avenue, Bloomfield, N. J.

**STAR MOTORS**

POWER PACKAGED AS YOU NEED IT

## Reports on Wood Pulp Output

In a statement just released by Oliver M. Porter, Executive Director of the U. S. Pulp Producers Association it is revealed that American pulp producers performed one of the industrial miracles of the war by jumping the amount of pulp produced in this country from approximately 6 million tons in 1938 to almost 11 million tons in 1942, with an average of nearly 10 million tons a year during this entire period of the war.

Despite the terrific difficulties of obtaining the necessary supplies of pulpwood and other essential materials, Mr. Porter said that the pulp mills of the United States and Canada so increased their production that not a single paper or board mill was shut down during the war for lack of pulp.

In continuing his statement, Mr. Porter said: "When war came, it was necessary for American industry to concentrate immediately on the production of essential goods and services. The Wood Pulp Industry of the United States met that challenge. Despite increasing difficulties resulting from inadequate supplies of labor, wood and transportation, this basic American industry increased its production of nitrating and other specialized pulps needed in the war effort and supplied an ever increasing share of the pulps required by the government agencies and civilian populations of all the Allied Nations.

"The tremendous requirements of our armed forces and, to a considerable extent, those of our allies, as well as our own essential civilian needs, were met by the extraordinary efforts of the United States and Canadian pulp mills to keep all of our domestic paper and board mills in operation, since no European pulp was imported after 1940.

"This extraordinary accomplishment was made possible by the system of Pulp Allocation and its collateral controls devised by David Graham and later carried on by Robert Evans. Full credit for its effectiveness is also due to the staff of the W.P.B.'s Pulp Allocation Unit, its Industry Advisors and the Pulp Allocation Committee, whose membership represented market pulp producers and both converting and self-contained paper and paperboard manufacturers.

"America is indeed fortunate that when the war came its pulp and paper industry was the most highly developed in the world, and that this industry was ready and able to supply the added paper required for wartime communications, wrappings, containers, sanitary and fiber-base products, maps, books, magazines, newspapers and the myriad of specialized products required by a great nation at war.

"A glance at the record of the pulp industry's performance shows how completely it met our national war requirements and filled the gap created by the cessation of European exports to this country.

AVERAGE ANNUAL TONNAGE
(In tons of 2,000 pounds)

| | Prewar Years 1935 thru 1939 | War Years 1940 thru 1944 |
|---|---|---|
| U. S. Pulp Production | 6,024,000 | 9,981,000 |
| U. S. Pulp Imports* | 2,068,000 | 1,199,000 |
| U. S. Pulp Exports | 193,000 | 341,000 |
| Domestic Pulp Sales | 658,000 | 1,521,000 |
| U. S. Pulp Consumption | 7,899,000 | 11,116,000 |

*From Canada and Newfoundland after 1940.

"During the 10-year period from 1935 to 1944 United States paper and paperboard production increased from 10,500,000 tons to a record of 17,800,000 tons. This increase in production, particularly during the war years, was made possible largely because the domestic pulp industry performed the miracle of production shown by the following figures:

TOTAL U. S. PULP PRODUCTION, ALL GRADES

| | |
|---|---|
| 1938 | 5,933,560 short tons |
| 1939 | 6,993,334 |
| 1940 | 8,959,559 |
| 1941 | 10,375,422 |
| 1942 | 10,783,430 |
| 1943 | 9,680,462 |
| 1944 | 10,108,443 |
| 1945, first 6 mos. | 5,219,000 |

"The pulp industry of the United States is confident that given equal opportunity with its foreign competitors, it can provide maximum postwar employment for its own labor and capital as well as for that of its dependent industries, and can continue to furnish domestic consumers with a stable supply of satisfactory pulp for all purposes, and at a reasonable price. The pulp industry of the United States fully met its obligations in time of War; it intends to do so in time of Peace, and thereby maintain its essential position in our national economy and contribute its full share to the security, welfare and progress of the United States."

## WPB Removes Machine Restrictions

WASHINGTON, D. C., September 5, 1945—To insure a maximum production of paper and paperboard, especially during the period of reconversion, restrictions on the use of idle paper machines were removed by the War Production Board today. This was effected by an amendment to paper and paperboard conservation order (M-241), which has not been revoked but amended to conform with today's changed conditions, officials of WPB's Paper Division pointed out.

Current paper requirements of the military and governmental bureaus make it necessary to retain the existing reserve production requirements of Order M-241 in the rag-content paper field. Mills producing these grades of paper must continue to maintain a reserve production of 35 per cent of each mill's monthly production to insure adequate tonnage of these papers for Government use. Included in this field are a considerable number of bond, currency writing, manifold and index grades of paper, WPB said.

Although the war is over, the Army, Navy and certain Federal agencies still require large quantities of several types of paper.

Men in the services still requires what are called "household papers," including toilet tissue and towels, as well as books, magazines and newspapers. Although many military packaging and shipping requirements have been materially reduced because ordnance and ammunition no longer have to be shipped, the soldiers and sailors have to be fed and maintained, and food packaging is still a major paper and paperboard requirement.

To take care of these demands, Order M-241 now requires that each paper and paperboard manufacturer reserve 20 per cent of his monthly production of all types of paper other than the rag content fine papers. This 20 per cent reserve replaces the figure of 35 per cent, which was formerly applicable to many of the printing and wrapping grades of paper.

Other amendments impose inventory controls formerly included in the provisions of several recently revoked quota restriction orders.

Another amendment removes the 10 days advance notice of changes in required reserve production percentages which may be called for now by WPB if found necessary without a waiting period.

# RELIANCE Series C MOTORS

## WITH DOUBLE-SHIELDED BALL BEARINGS

## GIVE LONGER, TROUBLE-FREE SERVICE!

DOUBLE-SHIELDED BALL BEARING
SHIELDS PROTECT BEARING AGAINST OVER-LUBRICATION KEEP GREASE IN, DIRT OUT
GREASE SEAL AGAINST MOISTURE AND DIRT
NO LEAKAGE OF GREASE INSIDE OF MOTOR
CLEARANCE FOR ELIMINATION OF EXCESS GREASE
CROSS-SECTION OF DOUBLE-SHIELDED BEARING IN HOUSING

### A BALANCED DESIGN, PRECISION BUILT

1. **Protecting enclosures** keep out dirt, chips, oil, excess moisture.
2. **Steel stators for strength,** incorporating experience from building motors to meet Navy high shock requirements.
3. **Thirteen-step winding treatment,** for maximum stator protection.
4. **Pressure cast rotors** provide trouble-free aluminum windings.
5. **Heavy shafts,** liberally designed for added strength.
6. **Improved bearing lubrication** affords real protection to bearings and windings.
7. **Optional lead outlet arrangement** permits machine mounting with elimination of conduit box.
8. **Flange and face type brackets** offer alternative methods of machine application.

*Send for Instruction Sheet 3042, which tells about Reliance double-shielded bearing design and why it needs no special attention. Information worth having, and it's yours for the asking.*

HERE'S good news for users of electric motors! No special lubrication attention is necessary with Reliance Series C Motors.

Just follow whatever greasing practice you have established for ball bearing motors. Properly lubricated, over-greased or under-greased, the Reliance design provides the answer to securing longer bearing life.

If under-lubricated after installation, bearings with this design will last longer than non-shielded bearings given the same treatment. This is because of grease retained within the shields plus grease remaining in the housing from its initial filling.

If over-greased after installation, they will operate satisfactorily without overheating, whereas non-shielded bearings under the same treatment may fail.

***It is not necessary to disassemble motors at the end of fixed periods to grease bearings. Bearing shields do not require renewal.***

Simplified lubrication procedure and longer life are good reasons for preferring Reliance A-c. and D-c. Motors. Some of the other reasons are indicated at the left. Write to or call the nearest Reliance office for complete information.

**RELIANCE ELECTRIC & ENGINEERING CO.**

**1099 Ivanhoe Road** **Cleveland 10, Ohio**

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Detroit • Greenville • Houston • Kalamazoo
Knoxville • Los Angeles • Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh
Portland, Ore. • Rockford, Ill. • St. Louis • San Francisco • Seattle • Syracuse • Washington, D.C.

**RELIANCE A-C D-C MOTORS**

## OPPOSES USE OF PRIORITIES

*(Continued from page 7)*

revocation August 24, 1945, WPB Printing and Publishing Officials said.

Heretofore, Order L-240 applied only to newspapers. All restrictions on newspapers remain in effect except that small newspaper publishers are now permitted to use five more tons per quarter than was previously allowed. The orders controlling the use of all grades of paper by the other printing and publishing industries which were revoked on August 24, 1945, were L-241 (Commercial Printing and Duplicating), L-244 (Magazines and Periodicals), L-245, (Books and Booklets), L-177 (Wallpaper), L-294 (Displays), L-289 (Greeting Cards and Illustrated Post Cards) and L-340 (Government Commercial Printing and Duplicating).

The industries that were controlled by these seven orders use chiefly book, groundwood printing and fine papers. These orders were revoked because of the increased supplies of these papers due to the importation of pulp from Sweden and decreases in military and foreign requirements. However, the circumstances resulting in the additional supplies of these papers did not affect the short supply of newsprint, which comes chiefly from Canada. The shortage of newsprint makes it necessary that other industries be limited in the amount of newsprint they may use.

"Newsprint", as defined in the amended order L-240, means the grades of paper commonly known as "standard newsprint" and "superstandard newsprint". The restrictions on persons other than newspaper publishers do not apply to other grades of groundwood paper such as "novel news" and "bulking news".

Under the amended order, book and magazine publishers and commercial printers may use in any calendar quarter up to 113.3% of the amount of newsprint that they lawfully used in the corresponding calendar quarter of 1944 or the second calendar quarter of 1945 or 10 tons, whichever is greatest. Publishers of shopping guides, free distribution newspapers, "want ad" publications and free distribution publications in newspaper format may use in any calendar quarter up to 105% of the amount of newsprint that they consumed in the comparable quarter of 1944 or the second calendar quarter of 1945 or 10 tons, whichever is greatest.

Newsprint delivery quotas are also established under the amended order L-240 for persons other than newspaper publishers, to conform generally with continued delivery restrictions on newspapers. These delivery quotas provide that no person other than a newspaper publisher may order or accept newsprint in any calendar quarter in excess of his consumption quota in that quarter. Further, he must so regulate his acceptances of newsprint that his inventory on October 1, 1945 will not be more than 45% of the newsprint that he lawfully used in the preceding quarter of 60 tons, whichever is greater.

## William Albrecht Dead

William Albrecht, chairman and founder of the Western Tablet and Stationery Company, St. Joseph, Mo. died suddenly August 22 at his home in St. Joseph.

Mr. Albrecht was born in Quincy, Ill., November 5, 1879. He organized the company with Henry F. Dayton in 1906 to manufacture tablets, composition books and a few miscellaneous items.

## Government Paper Bids Due

WASHINGTON, D. C., September 5, 1945—The Joint Congressional Committee on Printing will open bids September 17 for paper for the use of the Government Printing Office for the three-months period beginning October 1. The Committee will meet September 24 to consider awards.

The approximate estimated quantity of the paper called for includes the following:

| | |
|---|---|
| 2,500,000 | pounds newsprint paper. |
| 900,000 | pounds telephone book news. |
| 2,200,000 | pounds machine-finish book paper. |
| 3,500,000 | pounds offset book paper. |
| 100,000 | pounds 50% antique book paper. |
| 4,000,000 | pounds supercalendered book paper. |
| 700,000 | pounds machine-coated book paper. |
| 350,000 | pounds coated book. |
| 1,600,000 | pounds mimeograph paper. |
| 400,000 | pounds duplicator copy paper. |
| 150,000 | pounds U S M O safety writing paper. |
| 11,600,000 | pounds writing paper. |
| 2,885,000 | pounds map paper. |
| 715,000 | pounds manifold paper. |
| 3,150,000 | pounds bond paper. |
| 1,250,000 | pounds ledger paper. |
| 1,900,000 | pounds index paper. |
| 250,000 | pounds cover paper. |
| 140,000 | pounds manila paper. |
| 200,000 | pounds kraft paper. |
| 600,000 | sheets white gummed paper. |
| 250,000 | pounds tag board. |
| 130,000 | sheets railroad board. |
| 250,000 | pounds tan board. |
| 3,000,000 | pounds postal card paper. |
| 50,000 | sheets red pressboard. |
| 200,000 | pounds news board. |
| 230,000 | pounds binder's board. |
| 120,000 | pounds chestnut cover board. |

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

## Newsprint Use Cut Five Per Cent

WASHINGTON, D. C., September 5, 1945—All users of newsprint were directed today by the War Production Board to reduce by 5% their orders placed with mills for September delivery.

This was effected by an amendment to Direction 4 of the General Paper Conservation Order M-241. It applies to dealers, publishers, printers or other persons, except those whose September deliveries of newsprint from mills would be reduced to less than one carload, Forest Products Bureau officials said. Actually each user may accept only 95% of his orders placed in August for delivery in September.

WPB action was required because United States orders for September delivery of newsprint exceeded supply by about 11,000 tons.

Newsprint manufactured in Canada and the United States has been pooled as a single source of supply, WPB said. Any reduction in delivery acceptances, therefore, is to be applied uniformly to all United States users of newsprint whether they split orders between American and Canadian suppliers, or order 100% from either Canadian or United States mills.

A Canadian agreement to increase to 220,000 tons of newsprint each month in the third quarter of 1945 was based on the WPB promise to take immediate steps to eliminate any excess orders that might occur.

## Brown Employes at Clambake

NORTH ADAMS, Mass., September 1, 1945—Despite unfavorable weather conditions, an annual clambake for members of the Independent Paper Workers Union No. 4, composed of employes of the L. L. Brown Paper company, was held this week at Little's grove. More than 40 members and friends attended.

# BECAUSE THEIR NEED WAS THE GREATER

The approach of World War II found Calco one of the country's leading producers of sulfanilamide, sulfapyridine and sulfathiazole.

Thus, it was only natural that the Armed Forces should ask Calco to take on the major burden of producing in quantity American

Cyanamid's newly-developed sulfaguanidine and sulfadiazine.

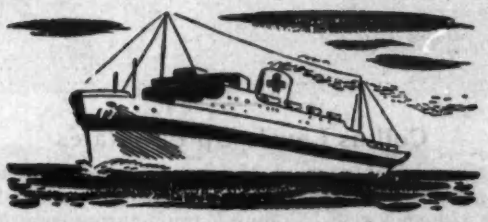
We knew that would mean diversion of materials, labor and skills from supplying our regular customers with products *they* needed for war production, too.

Still, with millions of men about to be exposed to wounds and disease, there could be just one decision. Calco delivered the needed quantities of sulfadiazine . . . and sulfaguanidine . . . and at the same time maintained limited production of other sulfa drugs.

Result: due in part to sulfa drugs and Calco's share in producing them, there have been 70 pneumonia deaths in the Army during this war, as against 17,047 in World War I . . . 12,000 deaths by disease as against 62,670 in World War I . . . and a correspondingly low proportion of deaths by wounds.

And sulfa production is just one of many war production programs at Calco that have had the cooperation and understanding of our customers.

Meanwhile, our customers can be sure of this: here at Calco we're doing everything in our



power to meet their present requirements—with all the extra time, labor and effort we can muster.

Heller & Merz Department

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# FINANCIAL NEWS

### New York Stock Exchange

High, Low and Last for Week Ending September 1, 1945

STOCKS

| | High | Low | Last |
|---|---|---|---|
| A. P. W. | 6½ | 6 | 6⅜ |
| Armstrong Cork Co. | 52 | 49¼ | 52 |
| Celotex Corp. | 18⅛ | 17⅜ | 18 |
| Celotex Corp., pf. | 21⅞ | 20¼ | 20¼ |
| Certain-Teed Products Corp. | 13 | 12⅝ | 13 |
| Certain-Teed Products Corp., pf. | 166 | 165 | 166 |
| Champion Paper & Fibre Co. | 38 | 35¾ | 37½ |
| Champion Paper & Fibre Co., pf. | ... | ... | ... |
| Congoleum-Nairn Co. | 32¾ | 31 | 32¾ |
| Container Corp. of America | 29⅜ | 29 | 29 |
| Continental-Diamond Fibre Co. | 13⅜ | 12⅝ | 13½ |
| Crown-Zellerbach Co. | 25¼ | 24¾ | 25¼ |
| Crown-Zellerbach Co., pf. | 103 | 102⅝ | 103 |
| Dixie Cup Co. | 32 | 28½ | 32 |
| Dixie Cup Co.—A. | 48½ | 48 | 48½ |
| Flintkote Co. | 32½ | 31¼ | 32½ |
| Flintkote Co., pf. | 110 | 109 | 109 |
| Robert Gair | 6⅞ | 6⅝ | 6¾ |
| Robert Gair, pf. | 18½ | 18 | 18¼ |
| International Paper Co. | 28⅜ | 27½ | 28⅞ |
| International Paper Co., pf. | 99½ | 97 | 99½ |
| Johns-Manville Corp. | 130 | 128 | 129½ |
| Johns-Manville Corp., pf. | 126½ | 125 | 126½ |
| Kimberly-Clark Corp. | 49¾ | 49 | 49 |
| MacAndrews & Forbes | ... | ... | ... |
| MacAndrews & Forbes, pf. | ... | ... | ... |
| Masonite Corp. | 45¼ | 43⅜ | 44½ |
| Mead Corp. | 17⅞ | 17 | 17⅞ |
| Mead Corp., pf. A—6% | 105½ | 105 | 105 |
| Mead Corp., pf. B—5½% | 101½ | 101½ | 101½ |
| National Container Corp. | 15⅞ | 15 | 15⅞ |
| Paraffine Companies, Inc. | 67½ | 67½ | 67½ |
| Paraffine Companies, Inc., pf. | 109½ | 109½ | 109½ |
| Rayonier, Inc. | 21 | 20¾ | 20¾ |
| Rayonier, Inc., pf. | 37 | 36⅝ | 36⅝ |
| Ruberoid Co. | 40 | 39½ | 40 |
| Scott Paper Co. | 57 | 56 | 56 |
| Scott Paper Co., pf. | 112 | 112 | 112 |
| Sutherland Paper Co. | 35 | 35 | 35 |
| Union Bag & Paper Corp. | 20⅝ | 19½ | 20⅛ |
| United Paperboard Co. | 7⅝ | 7½ | 7⅝ |
| U. S. Gypsum Co. | 97¼ | 96½ | 97 |
| U. S. Gypsum, pf. | 190¼ | 190¼ | 190¼ |
| West Virginia Pulp & Paper Co. | 32½ | 30 | 33½ |
| West Virginia Pulp & Paper Co., pf. | 108¼ | 108 | 108 |

BONDS

| | | | |
|---|---|---|---|
| Abitibi & Paper Co., 5s '53 | ... | ... | ... |
| Celotex Corp., 3¾s '55 | ... | ... | ... |
| Certain-Teed Products Corp. 5½s '48 | ... | ... | ... |
| Champion Paper & Fibre Co. 4¾s '50 | ... | ... | ... |
| International Paper Co. 6s '55 | 109 | 108¾ | 109 |
| International Co. 5s '47 | 104¼ | 104 | 104⅛ |
| Mead 3½s '53 | ... | ... | ... |

### New York Curb Exchange

High, Low and Last for Week Ending September 1, 1945

STOCKS

| | High | Low | Last |
|---|---|---|---|
| Great Northern Paper Co. | 38½ | 38 | 38 |
| Hummel-Ross Fibre Corp. | 9 | 9 | 9 |
| St. Regis Paper Co. | 8⅛ | 7⅞ | 8 |
| St. Regis Co., pf. | ... | ... | ... |
| Taggart Corp. | ... | ... | ... |

## Collins Levels Up Pay Rates

NORTH WILBRAHAM, Mass., September 1, 1945—A voluntary three-cent-an-hour general increase for the 130 employes at Collins Manufacturing company, was announced today by Paul C. Bast, vice-president.

Bast said the raise, granted by the company without War Labor board action, would be retroactive to April 1.

An appeal had been filed jointly by the company and the independent union with the wages and hours division of the WLB a short time ago for the general wage increase, but lifting of wartime restrictions at the end of the Pacific conflict resulted in today's action, Bast said.

The three-cent raise brings wages at the local paper mill up to the level of the Holyoke paper mills, which a month ago were granted a similar increase under WLB approval.

At the end of the war, the government had relaxed restrictions, permitting employers to grant wage increases providing the company did not use the increases to raise the cost of the product.

## Rayonier Profits Lower

Rayonier Incorporated, for the quarter ended July 31, 1945, shows consolidated net profits before depreciation, depletion and federal taxes on income, of $1,602,726, compared with $1,508,566 for the corresponding first quarter of the previous year. Net profit after all charges, including federal taxes, was $470,103, against $484,373, equal after preferred dividends to 16 cents per share on the common stock compared with 18 cents for the same period in 1944. Depletion charges were substantially higher due to increased cutting of timber from the Company's own holdings.

President Edward Bartsch, in his letter to stockholders, states that the company is unusually fortunate in that it has no plant reconversion problems and will continue to manufacture its high alpha wood pulps for sale to customers with whom it has outstanding contracts. There is a large pent-up demand for many of the end-products of the industries which the company serves, indicating a strong pulp market for many months. Foreign pulp is now being shipped to this country in relatively small quantities and the best available information leads the company to believe that these shipments will not be materially increased in the near future.

Consolidated balance sheet at July 31 shows current assets of $8,997,297 and current liabilities of $2,150,644.

It was announced that W. S. Lucey had been elected a vice president, and W. D. Keveney appointed comptroller.

## Mittendorf Sees Good Business Ahead

TROY, Ohio, September 5, 1945—A prolonged era of good business for the paper trade will follow a short temporary lull, in the view of T. H. Mittendorf, recently elected vice-president of the Gummed Products Company in this city. His company, now in the midst of its reconversion for postwar production, has plans which he is unable to disclose at this time, but he is optimistic that reconversion problems of the paper business are small beside those of other industries whose war production involved items far removed from those which they normally produce. Mr. Mittendorf, whose election as vice-president of the company was recently incorrectly reported as the action of another manufacturer, has been general manager at the Gummed Products plant since 1940.

## N.P.T.A. Plans September Meetings

Because of the easing of travel conditions and ODT restrictions, President R. M. Harris of The National Paper Trade Association has called a meeting of its executive committee at the Stevens hotel, Chicago, on Tuesday, September 25. In addition to its usual agenda, the Committee will devote special study to the problems of the trade following the termination of the war and plans for future activities of the Association. Arrangements have also been made for a Mid-West regional meeting to be held in the South Ball Room of the Stevens on the following day, Wednesday, September 26th, starting at 10 A.M.

## Oxford Profits Off

Oxford Paper Company of Maine reports for three months ended June 30, 1945, net earnings after charges of $231,204. For six months ended the same date, net earnings were $44,915 compared with $429,311 in the corresponding six months of 1944.

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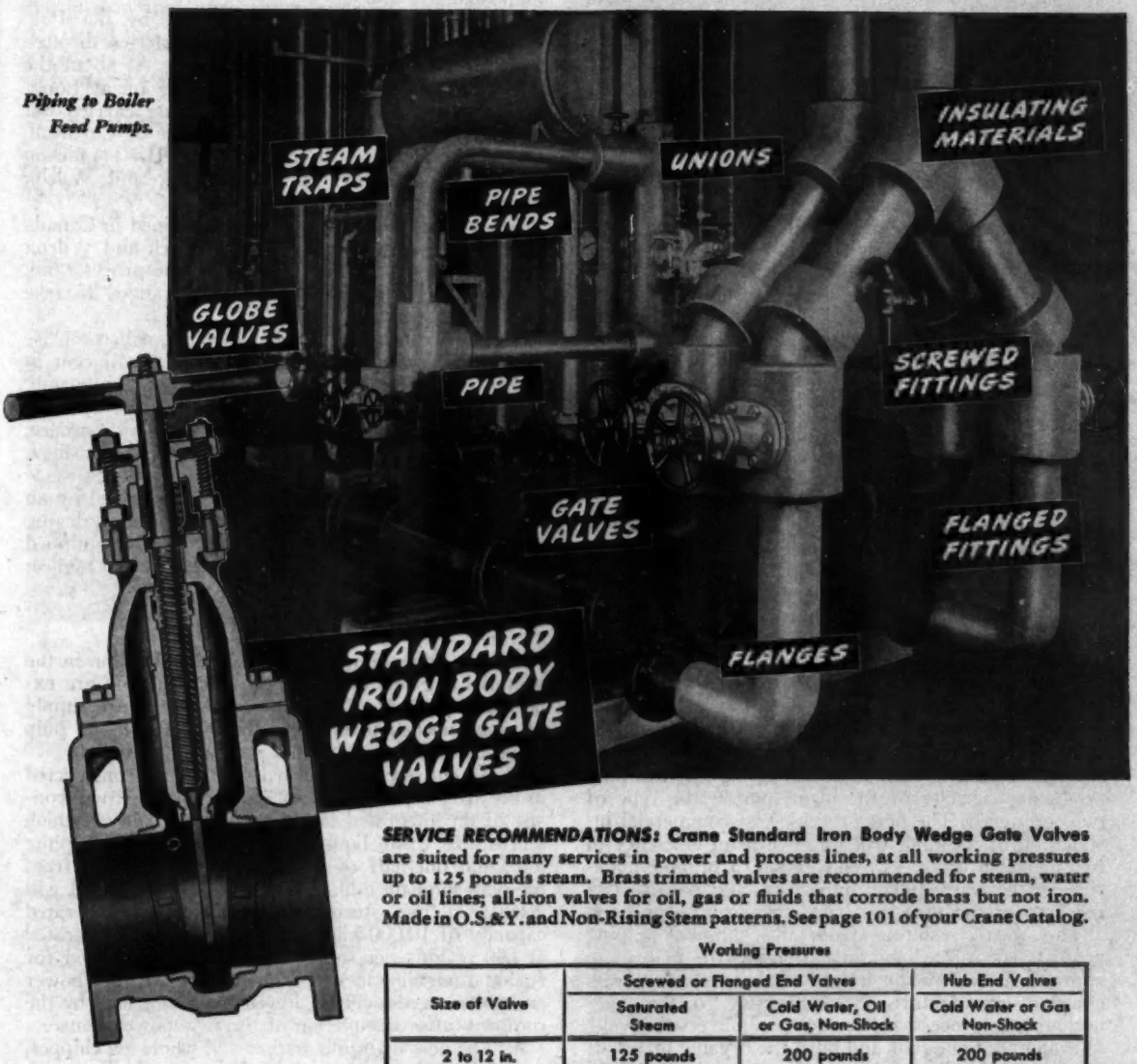
*Piping to Boiler Feed Pumps.*




***SERVICE RECOMMENDATIONS:*** **Crane Standard Iron Body Wedge Gate Valves are suited for many services in power and process lines, at all working pressures up to 125 pounds steam. Brass trimmed valves are recommended for steam, water or oil lines; all-iron valves for oil, gas or fluids that corrode brass but not iron. Made in O.S.&Y. and Non-Rising Stem patterns. See page 101 of your Crane Catalog.**

**Working Pressures**

| Size of Valve | Screwed or Flanged End Valves | | Hub End Valves |
|---|---|---|---|
| | Saturated Steam | Cold Water, Oil or Gas, Non-Shock | Cold Water or Gas Non-Shock |
| 2 to 12 in. | 125 pounds | 200 pounds | 200 pounds |
| 14 and 16 in. | 125 pounds | 150 pounds | 150 pounds |
| 18 to 24 in. | * | 150 pounds | 150 pounds |

*For steam lines larger than 16-in., Crane 150-Pound Cast Steel Gate Valves are recommended. (For sizes under 2-in., use Crane Clamp Gate Valves.)

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# Weyerhaeuser to Expand Pulp Production

## West Coast Timber Company Starts Program Planned To Yield Added 70,000 Ton Capacity In Bleached Sulphate—New Magnesium Process Will Cut Wood Requirement For Bleached Sulphite.

LONGVIEW, Wash., August 31, 1945—A post-war program of expansion and improvement which will in effect double the present capacity of the plant, call for 600 man years of labor during the construction, and provide approximately 250 additional permanent jobs, will immediately be undertaken by the Pulp Division of the Weyerhaeuser Timber Company it was announced here today by J. P. Weyerhaeuser, Jr., Executive Vice-President. The program consists of a complete conversion of process in the present sulphite mill, which has an annual capacity of 90,000 tons of bleached sulphite, the addition of an entirely new sulphate pulp plant with an annual capacity of 70,000 tons of bleached sulphate, the construction of a new steam and power generating unit, and the addition of two hydraulic log barkers. Capital reserves to cover the increased investment have been accumulated by Weyerhaeuser Timber Co. over a period of years as part of a long range policy based on progressive improvement of plant and refined utilization of forest resources.

### To Use 15 Per Cent Less Wood

The existing sulphite pulp mill will continue to turn out its present tonnage, but with 15 per cent less wood, and in addition will provide virtually all its own steam and power requirements. The new sulphate pulp mill will manufacture 70,000 tons of additional pulp annually and supply much of its own steam and power without calling for any enlargement of the present areas being logged. This accomplishment will be the fruit of improved and integrated wood utilization practices in forestry, logging and milling.

In detail, the program includes the following major units:

1. The present bleached sulphite pulp mill will be converted from a lime base process to a magnesium base process. This will mean no change in the pulp producing capacity of the plant, nor in the type of pulp produced. The new process, first commercial installation of its kind, will improve plant efficiency in two principal ways: (1) conversion of organic materials in the waste liquor into steam and power; (2) recovery of the principal basic chemicals.

The waste resulting from the sulphite pulping process has for a long time been known to contain approximately 50% by weight of the raw wood bulk entering manufacture. By converting to the magnesium base process, it becomes possible economically to evaporate the liquor and burn the organic materials for the production of heat and power. At the same time, the new process will also permit recovery of about 90 per cent of magnesium oxide and sulphur, the basic heavy chemicals used in the production of the pulping acid. The values so recovered will supply virtually the total heat and power needs of the converted sulphite pulp mill, and in consequence represents a long step forward in wood utilization. Previously all the steam and power requirements of the pulp mill have been supplied by the power plant operated by the Lumber Division.

Conversion of the sulphite mill will be carried on without interruption to present production. When the necessary facilities have reached a certain stage, the switch from the old process to the new will become immediate.

The new process was worked out by the Pulp Division's Research Department and carried through a successful pilot plant demonstration. At about the same time the experiments were going on at Longview, a similar investigation was being carried out by the Howard Smith Paper Company of Cornwall, Ontario, under the direction of G. H. Tomlinson with the cooperation of the Babcock and Wilcox Company.

Subsequent study of the results obtained in Canada and in Longview convinced the Babcock and Wilcox Company of the unique features of the process and, as equipment manufacturers, they arranged to take over the sale of the process.

2. The bleached sulphate pulp plant will comprise largely an entirely new set of buildings adjacent to and in part combined with the existing sulphite mill. The main elements of the plant will consist of chipping plant and storage facilities, recovery furnace, lime kiln, evaporators, digesters, screens, washers, bleach plant drying machine room and warehouse.

The present machine room will be extended by an addition 50 x 375 feet and an additional drying machine will be installed. The plant will be equipped to produce bleached sulphate pulp of the highest quality.

### Pulp from Wood Saved

Far-reaching refinements in wood utilization in the overall Longview operations of the company are expected to yield from current wastes the entire supply of wood needed to bring in the 70,000 tons of pulp to be manufactured by this new unit annually.

3. An entirely new power house will be constructed in the area northwest of the present plant. It will consist of an integrated boiler house, one-half of which will utilize waste liquor from the converted sulphite mill, and one-half of which will utilize liquor from the new sulphate mill. The generating equipment will consist of two steam turbines with a total rated capacity of 10,000 kilowatts. Steam will be generated at 600 pounds per square inch. Wood now used for fuel at Longview to supply the Pulp Division's power and steam needs will be diverted to other uses by the company after completion of the new power house.

4. The new hydraulic barker and whole log chipper, presently under construction adjacent to the log pond, will be completed by December 1, 1945. A similar log barking and chipping unit has been in operation at the company's sulphite pulp mill in Everett, Washington, for about three years. The present installation, which will utilize commercial log sizes, will largely duplicate this earlier installation at Everett. The barking process was the product of several years' engineering research by the Pulp Division.

The hydraulic method of barking large logs will result in saving in excess of 15% of sound wood be-

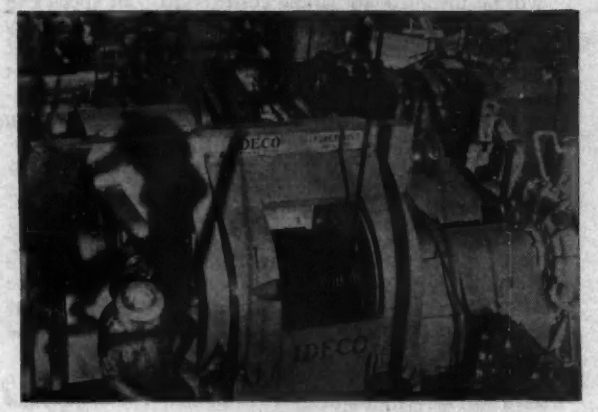
# THE CLUTCH THAT STOPPED CLUTCH TROUBLE

Here is the one truly modern clutch for all heavy duty industrial drives.

It controls power and torque through a cushion of air —with as firm a grip or as light a grip as the job requires. It has no springs, arms, levers or toggles—requires *no* lubrication and little maintenance.

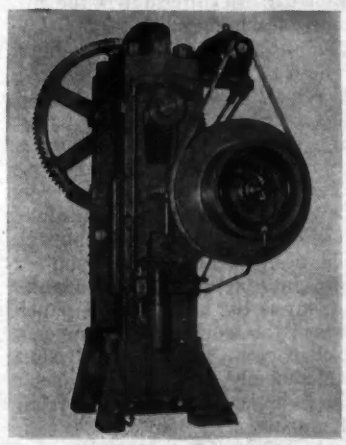
It is the Fawick Airflex Clutch—proved for superior performance and economy—in hundreds of industrial applications and in thousands of Diesel-driven Navy ships.

Let us help you engineer clutch trouble *out* of your machines. Book on request.



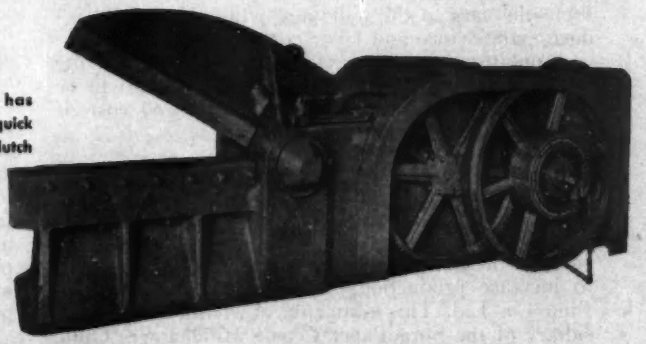
Oil-well drilling rig—equipped with 11 Fawick Clutches.

Steel rolling mill Fawick-equipped for smooth, even power.



▲ Modern power shovel gives full-time operation through dependable Fawick Clutches.

◀ Heavy duty press has smooth starts and quick stops with Fawick Clutch and Brake.



▶ Alligator shear operates through Fawick Clutch and Brake.

## FAWICK *Airflex* CLUTCH

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cause the waste in the form of saw kerf and wood taken off with the bark by mechanical means will be eliminated.

5. A new type small log barker, to be ready for operation next April, and of hydraulic jet principle, will be installed, to handle cordwood of all species in 8 foot lengths, and in diameter ranging from 4" up to 16". The installation will permit the recovery of sound wood heretofore denied an economical outlet in the normal process of logging. In effect, installation of the small log barker, together with certain other refinements, is expected to improve the utilization of wood per acre of forest land by 30% by making use of present logging waste and thinnings in young forests.

Execution of design and supervision of construction will be under the direction of the company's consulting engineer, O. C. Schoenwerk, Chicago, who also served in similar capacity in construction of the Pulp Division's present plants at Longview and Everett.

The improvements and additions in the program as a whole will require an estimated 1,350,000 man hours of local labor. This figure refers to the construction phases alone. Expenditures made locally will be supplemented by purchase of certain materials and services.

Principal source of new permanent employment will be in the new sulphate pulp mill. The net addition to operating crew will be approximately 250 employes. This will represent an annual estimated payroll of $800,000.00, which will in effect be double the present annual payroll.

## West Virginia Spends $500,000

COVINGTON, Va., September 1, 1945—A modernization program has been begun by West Virginia Pulp and Paper Company, at its Covington plant, with The Rust Engineering Co., Pittsburgh, Pa., acting as contractor. The major project is the installation of a system of sluiceways to take the place of existing mechanical facilities for handling incoming pulpwood. This system, designed by West Virginia Pulp and Paper engineers, will carry pulpwood from the cars to storage and then to the mill, or directly from the cars to the mill; and will substantially reduce maintenance and labor costs.

A one-story warehouse for activated carbon is being designed by Rust; and demolition work will be carried out on several chimneys. Estimated cost of the program is in excess of $500,000.

## Sorg to Spend $750,000 at Port Mellon

PORT MELLON, B. C., September 1, 1945—Approximately three quarters of a million dollars will be spent in the next 18 months in expansion of its plant to increase production of kraft pulp by the Sorg Pulp Co. Ltd. This company, a wholly-owned subsidiary of the Sorg Paper Co. of Middletown, Ohio, took over the Port Mellon plant of the Vancouver Kraft Corporation in 1941. At present the company employs 320 and produces 100 tons of pulp per day.

Hugh M. Lewis, vice-president and general manager of the plant, states major improvements planned include a modern chemical recovery plant and a new pulp washing system. The later equipment has already been ordered, and will, it is expected, be installed and in operation by early spring.

In addition to the $750,000 expansion program now announced the company is at present completing new yard storage facilities, installation of a new water system, provision of new docks and shipping facilities, improvements to the booming grounds, additions to the Port Mellon townsite, and the installation of lumber handling equipment.

## Robertson Outlines Champion Plans

CANTON, N. C., August 29, 1945—Reuben B. Robertson, executive vice-president of the Champion Paper & Fibre Company, announces a post-war expansion program, designed to increase the daily capacity of the Canton division of the company to a total of more than 1,000 tons of chemical pulp, paper and board products and involving an expenditure of approximately $5,000,000.

"With the completion of this proposed expansion program which is anticipated during 1946, chemical pulp tonnage will be stepped up to more than 600 tons daily, while paper and board products will reach a total daily capacity of more than 450 tons," Mr. Robertson explained.

"During the past ten years the Canton division of the Champion Paper & Fibre Company has shown remarkable strides in the increase of paper, board and chemical pulp production," he said. "During this period, paper and board production was increased by approximately 60 per cent, while at the same time chemical pulp production was increased by approximately 80 per cent.

"Post-war plans now call for the conversion of the sulphite pulp process to a bleached sulphate pulp process where southern pine wood, as well as hardwoods, can be successfully used. Present wood supplies are adequate to care for present and future operations.

"In order to fully round out these expansion plans," Mr. Robertson continued, "many alterations and additions in the plant will necessarily have to be made. Chief among these plans will be the completion of a new chemical recovery unit which is now under construction and which will likely be completed early in October. Also included in the program is the installation of a new pulp bleaching unit, a 7,500 kw turbine, as well as the installation of a new high pressure steam boiler unit.

"These changes," he added, "will permit an increase in pulp capacity of 50 tons per day, while the paper and board production will be increased by approximately 120 tons per day.

"In order to handle this substantial increase in paper production, a new fourdrinier paper manufacturing machine will be installed at a cost of approximately $2,000,000. The new machine will be similar to the present No. 2 machine in the bookmill manufacturing area which today is the largest white paper manufacturing machine in the world. With the completion of the new No. 1 machine, the Canton division of the paper and fibre company will boast two such machines which will be in a class to themselves from a white paper manufacturing standpoint.

"Just as quickly as building materials and equipment are made available," Mr. Robertson stated, "the company contemplates the erection of a modern cafeteria for the benefit of the more than 2,300 Champion employes of the Canton division. Site of the new cafeteria has not yet been definitely selected.

"Whether additional employes would be necessary with the completion of the post-war expansion program is not immediately known, but the entire program will be completed during the early part of next year," it was stated.

## Westminster Plans Improvements

NEW WESTMINSTER, B. C., August 31, 1945—More complete details have now been released by E. M. Herb, president, regarding the construction and expansion program of the Westminster Paper Company, Limited. This company at present occupies four acres and recently purchased an additional four acres of adjacent land for plant expansion. Plans call for the expenditure of approximately $1,250,000.

Provision has been made for a new and larger wharf 56 feet by 275 feet and the bulkheading of the entire river frontage on the Fraser. The wharf will incorporate a 5-ton Barlow Marine Elevator and gasoline powered lift trucks will be utilized for efficient mechanical handling of raw materials from waterborne carriers to storage zone and finally to place of consumption.

Building plans provide for construction of a reinforced concrete and steel fireproof building 85 feet by 225 feet, two stories, to house the paper machine, and a building of similar construction 126 feet by 112 feet, three stories, to provide additional room for converting paper products and storage of same. A new office building will be erected, which will leave the present office space available for modern locker rooms and cafeteria. The boiler house will be enlarged and a complete new fuel storage with modern conveying system, erected. The general contracts for all building construction have been allotted to the Dominion Construction Company of Vancouver.

Equipment presently on order for the program includes a 132-inch wide Beloit Iron Works Yankee design paper machine of the latest and most efficient type. Stock preparation equipment is being manufactured by Alexander Fleck Limited of Ottawa and will consist of their latest type hydrapulper and hydrafiner systems which have been brought to perfection during the war years. Converting equipment to be installed will handle the output of the new paper machine, and will provide additions as well for the present plant. A third log fuel burning boiler will be installed to provide the additional steam requirements needed. A new filtering plant will be erected on the recently acquired property to further purify the water in the paper-making process. The latest and most modern types of conveying equipment and labor-saving devices are being provided throughout.

At the present time the new wharf is completed, installation of the Barlow elevator is proceeding, and excavating for the new machine room building is underway. The earth for fill behind the bulkhead along the waterfront has been provided by the widening of Fifth Avenue adjacent to the company's property and from excavating for the foundations.

The completion of the new program will mean an increase of employes from 220 to 325, and the productive capacity of the plant will be doubled. The company presently manufactures toilet paper, paper napkins, paper towels, sanitary napkins, plain and printed fruitwraps, wax paper, including printed and plain breadwraps. Under the new program cellulose and facial tissues will also be produced.

## Parsons Fetes Bresnahan

HOLYOKE, Mass., September 1, 1945—Maurice Bresnahan was given a farewell war bond as a present from Henry Burgee, general manager of the Parsons Paper company, upon his retirement this week after 45 years continuous service with that plant. He was a beater engineer.

## Fibre Container to Expand Plant

MARTINSVILLE, Va., August 30, 1945—The Fibre Container Company, this city, has just announced plans for a $250,000 expansion program. Robert P. Groner plant manager, said his firm has already let a contract to the Fox Construction Company, of Richmond, for the erection of an addition, 85 feet in width and 250 feet in length. The job must be finished in 120 working days.

The new plant, he added, will house new and modern types of machinery to make fibre board containers that were developed during the war and will be one of the most modern and efficient corrugated fibre shipping case and box plants in the country. Mr. Groner said the addition will double the plant's output and employ from 140 to 150 workers.

## U. S. Envelope Raises Scale

SPRINGFIELD, Mass., September 1, 1945—A 6 per cent increase in wages has been given by the United States Envelope Company to employes of its plants in this city, in Worcester, Hartford, Rockville, Ct., Waukegan, Ill., and Indianapolis, Ind., it was announced today by E. V. Johnson, first vice-president. Approximately 700 employes of the plant in this city will benefit from the raise.

The federal AFL union at the P. B. Kellogg division voted to accept the offer despite a feeling by some of the employes that it should have been made retroactive to the time last year when the concern asked permission of the War Labor board to give such an increase.

## Work Starts on Neenah Addition

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 4, 1945—Work was started last week by the C. R. Meyer Construction Company in preparation for the construction of an addition to the Neenah Paper Company mill over the river from the south end of the bridge back to the present building at Neenah, Wis.

Complete details of the project, planned for several years, await final approval from the federal government.

## Gregg Opens Private Practice

VANCOUVER, B. C., September 1, 1945—E. E. Gregg, known as "Mike" has now resigned from the B. C. Forestry Service, and will enter private practice as a forest engineer, in Vancouver. Mr. Gregg has been with the B. C. Forest Branch since he graduated with the degree of B.Sc. from the first forestry class at the University of British Columbia 22 years ago. Mr. Gregg has been succeeded in the forestry service by E. W. Bassett, who has had extensive service with the department in various parts of the province.

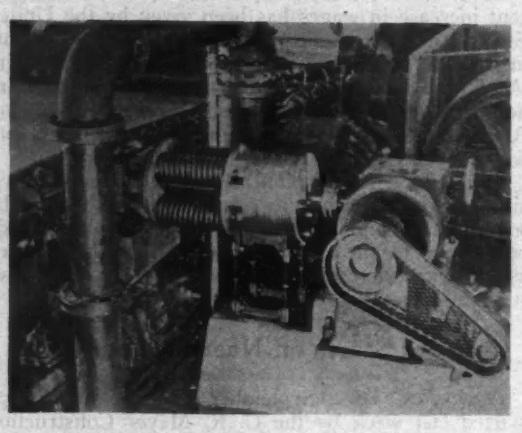
## Great Lakes Expansion Nearly Ready

TORONTO, Ont., September 1, 1945—According to President Earl Rowe, the Great Lakes Paper Company mill at Fort William, Ont., will be operating at capacity early in 1946, as its $400,000 plant expansion program is nearing completion. The new construction includes drying equipment for sulphite pulp, which he described as "a major undertaking", modern warehousing and shipping facilities, and additional wood-handling equipment.

## 750 Shake Vibrator for Fourdriniers

BOSTON, Mass., September 5, 1945—A new shake mechanism, with a practically unlimited shake frequency, has just been announced by the Submarine Signal Co. By utilizing a special form of resonance this device makes it possible to vibrate even the largest shake-sections at frequencies far higher than those in use today. It offers the paper industry an opportunity to match the shake speed with today's fast wire speeds and obtain material improvements in formation. The modern tendency in Fourdrinier design towards wider machines and higher wire speeds to obtain greater manufacturing economy and efficiency of operation, has emphasized the difficulties of providing and maintaining adequate shake mechanisms.

Essentially this equipment, which is called a Compensator by the manufacturer, consists of a number of powerful coiled springs and a so-called "compensating mass" all floating on flexible mountings. One



COMPENSATOR IN A TYPICAL INSTALLATION

end of the spring system is bolted to the Fourdrinier breast-roll, or other suitable point, with the "compensating mass" at the other end.

In operation the shake-section and the "compensating mass" are always moving in opposite directions and their energy is always balanced. As the springs are extended they release their energy to both masses; as the springs are compressed they absorb the energy of the two masses.

With this Compensator the shake head simply acts like the main spring of a watch, and supplies just a little energy during each stroke. No longer is it called upon to throw the shake-section to the end of the stroke, reverse the motion and pull these tons of mass back at full speed.

The smooth, even motion given the shake-section practically eliminates all side and back thrust. Thus it materially reduces pivot-pin wear and unwanted vibration of the shake-section. Since the back thrust is cushioned by the Compensator, excessively heavy foundations are no longer required for the shake head.

This Compensator is an outgrowth of the more than forty years experience of Submarine Signal Company in applying vibratory methods to underwater signaling and industrial needs. Although Compensators have been in satisfactory operation for more than four years, no public announcement has previously been made because government requirements for war equipment prevented manufacture.

## Valley Research Adds More Space

MONTAGUE, Mich., September 4, 1945—When additions have been completed, which will be in about thirty days, the Valley Research Corporation will have approximately 7000 square feet of floor space, in its laboratory at Indian Lake. The company expects to have one of the finest and best equipped laboratories for research, experimentation and testing paper combinations in the midwest.

Tentative plans include research facilities along plastic spectrographical, metallurgical, electronic and mechanical lines. Construction of additions to the original building are now under way to provide these extra facilities.

The stockholders are Clifford B. Pape, president; Thomas B. Dalton, vice president; Joseph A. Sadony, Jr., and Arthur J. Sadony, of Montague; Gilbert F. Hauke, treasurer, Detroit; F. Ashton Smith, Chappaqua, New York, and Thomas B. Buchanan, Yonkers, N. Y.; G. Leslie Field, corporation counsel, is secretary.

## Manhattan Rubber Gets 4th Award

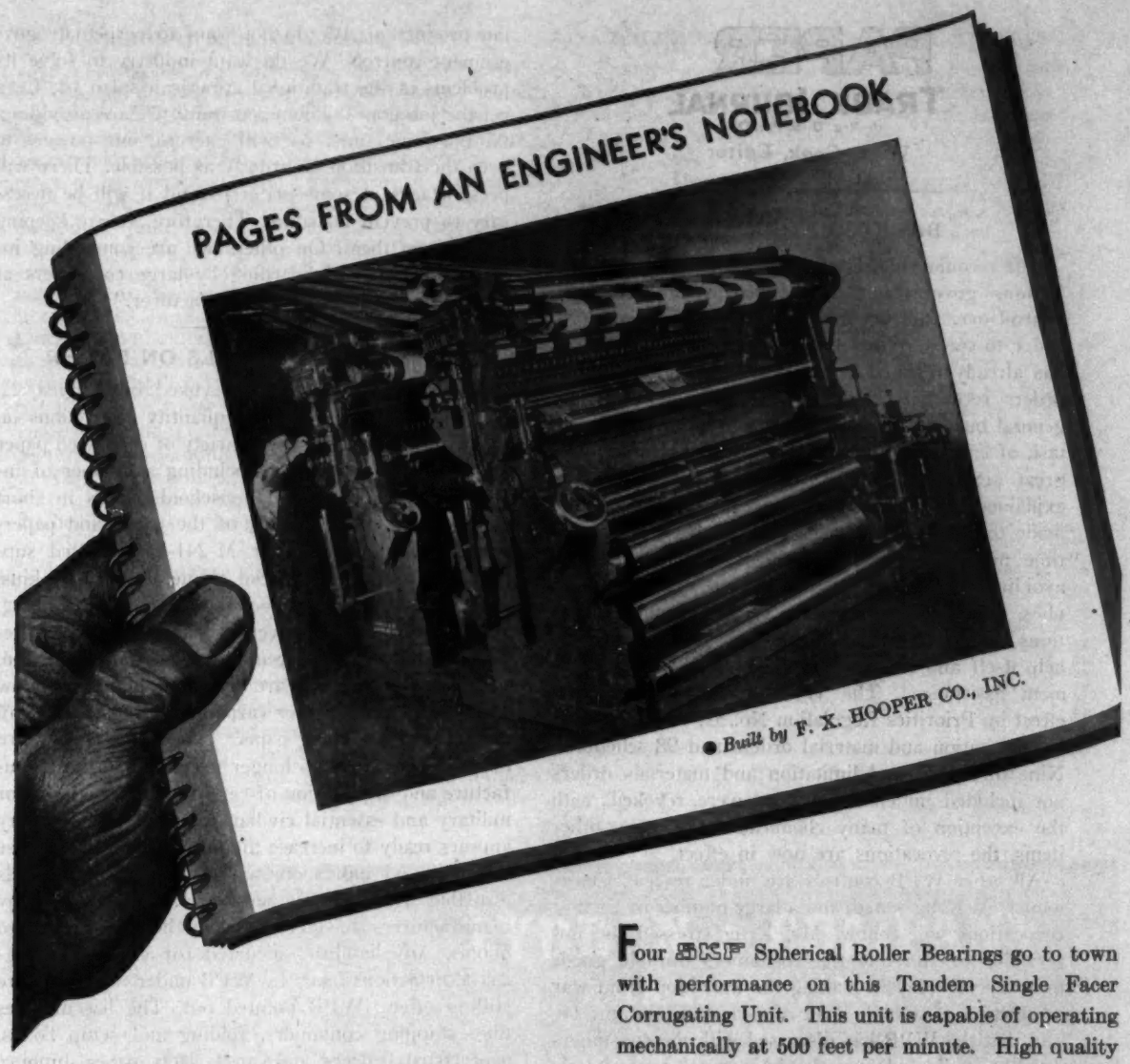
Word that its Army-Navy "E" Award for meritorious service on the production front has been renewed for the third time, was received by employes of The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., in a letter from Robert P. Patterson, Under Secretary of War. The Company was presented the original Award giving it the right to display the Army-Navy "E" burgee on October 28, 1943, the Fiftieth Anniversary of its founding. The third White Star, which the renewal adds to the burgee, signifies that Manhattan employes continued to maintain the high production standard which won the original award, and is a symbol of appreciation from the Armed Forces for Manhattan employes' determined effort and patriotism.

## Railway Supply Appoints Stewart

CINCINNATI, Ohio, September 4, 1945—Announcement of the appointment of Arthur M. Stewart, Jr. as advertising and sales development manager, effective September 15, has been made by William H. Jones, vice-president of the Railway Supply and Manufacturing Company. Mr. Stewart will be located in the headquarters offices at Cincinnati, but will work closely with the company's textile plants in Greensboro, N. C., Charlotte, N. C., Covington, Tenn., Franklin, Ohio, Cincinnati, Ohio and Birmingham, Ala., and with the sales offices in Chicago Ill., New York, N. Y., Detroit, Mich., and Dallas, Texas.

## Bloch Visits Ocean Falls

VANCOUVER, B. C.—Louis Bloch, chairman of the board of directors of Pacific Mills, Limited, recently visited the company's mill and townsite at Ocean Falls, British Columbia. He was accompanied by Paul E. Cooper, president of the company. A highlight of the occasion was a banquet attended by employes and their wives. At this gathering, under the chairmanship of R. H. R. Young, general manager of the Ocean Falls mill, Louis Bloch presented 54 company service pins to employes. It was at this gathering that Cooper formally announced the company's pension plan.




# 500 F.P.M. ON SKF BEARINGS

Four SKF Spherical Roller Bearings go to town with performance on this Tandem Single Facer Corrugating Unit. This unit is capable of operating mechanically at 500 feet per minute. High quality board is produced with high compression test. These self-aligning bearings on pressure and corrugating rolls provide equalized load distribution . . . high capacity at all times. One day of smooth running, low lubrication, and freedom from attention is added to another until years of dependable; profitable performance have passed. And that, in terms of the right bearing in the right place, means SKF.

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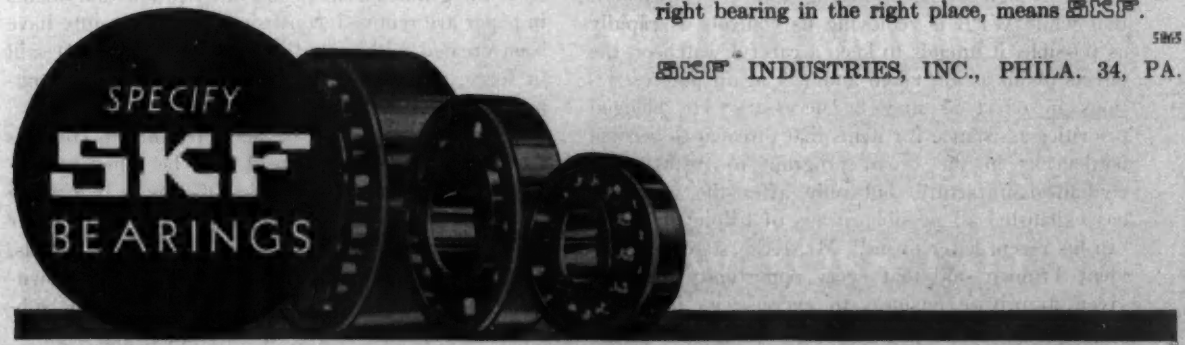

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W. L. Cook, Editor

## BACK TO NORMALCY

The recommendations of President Truman to the various governmental war agencies to relinquish control over industry and trade so far as possible in order to speed reconversion, is most encouraging. It has already resulted in the revocation of 210 WPB orders recently. Under this stimulus industry and general business has proceeded to expedite the great task of converting a huge war industry to an equally great peacetime industry. As the War Production explained in its release these sweeping changes were made to speed the flow of a wide variety of peacetime products into the hands of consumers, while avoiding price inflation, preemption of scarce supplies, or a buyer's scramble. With so many restrictions removed it is relatively easy for industry to help itself and to solve its problems without government assistance. The WPB action was put into effect by Priorities Regulation No. 51, which revoked 103 limitation and material orders and 98 schedules. Nine directions and limitation and materials orders not included under PR-51 also were revoked, with the exception of many chemicals and a few other items, the revocations are now in effect.

All other WPB controls are under review, Chairman J. A. Krug stated, and a large number of further revocations will follow. Mr. Krug stressed the importance of the role the consumers durable goods industry will play in making the transition from war production to a high level of peacetime output. He said that the WPB has discussed with the consumers durable goods industry the importance to economic stabilization of large production in their lines. They have agreed to produce the same proportion of low-cost merchandise as they did prior to the war. The lifting of individual orders does not remove this obligation from industry. The WPB is prepared to reimpose its orders if this does not prove to be the case. Industry has agreed to do all it can to step up output to high levels, Mr. Krug said. He emphasized that while WPB is removing its controls as rapidly as possible, it intends to keep a careful watch on the effects of all action taken and will again put restrictions in effect as may be necessary. He pledged priorities assistance for items that threaten to become bottlenecks in the broad program to restore full civilian manufacture, but only after the applicant has exhausted all possible means of helping himself. "In his recent letter to me," Mr. Krug stated, "President Truman said that every opportunity must be given to private business to exercise its ingenuity and forcefulness in speeding the resumption of civilian production. We do not want to perpetuate government controls. We do want industry to solve its problems in the traditional American spirit of 'Let's get the job done!' This opportunity we are providing. At the same time, we will exercise our powers to keep the transition as orderly as possible. There will be shortages in some materials and it will be necessary to prevent hoarding. Therefore we are keeping controls on them. On others we are controlling inventory to prevent hoarding by large consumers at the expense of the small manufacturer."

## REVOKED CONTROLS ON PAPER

Important controls were revoked on August 22, 23 and 24, discontinuing all quantity restrictions on the manufacture of a large variety of converted paper and paperboard products, including a number of industrial, commercial and household papers in short supply. With the dropping of the paper and paperboard conservation Order M-241-a, increased supplies of toilet paper, facial tissue, towels, napkins, straws and waxed paper should be forthcoming, WPB said. Other converted paper products, previously limited to a percentage of normal production, but now unrestricted, are Venetian blinds, window shades, draperies, paper carpets and rugs and retail packages of wrapping paper. The revocations were made because it is no longer necessary to the manufacture and distribution of certain paper products for military and essential civilian requirements. Industry appears ready to increase the output of most of these products and indications are that adequate paper is available. WPB said it had been requested by many manufacturers to increase their heretofore limited quotas. Any liabilities incurred for violation of M-241-a, or actions taken by WPB under the order, are still in effect, WPB pointed out. The list includes fiber shipping containers, folding and setup boxes, paperboard, grocers' and variety bags, paper shipping sacks, specialty bags, wall paper, commercial printing and duplicating, magazine and periodical, books and booklets, greeting cards and illustrated post cards, displays, and government commercial printing and duplicating papers.

The controls thus far revoked are confined to the consumption or use of paper. As restrictions imposed upon the grades, weights and other production details in paper are retained, confusion and uncertainty have been created within the industry. Order M-241 still in force, and Order L-120 not yet revoked, are important deterrent factors.

An encouraging item of news relating to costs, is the notice that a hearing will soon be called to consider the proposal to establish 10% lower than present carload rates on printing paper, wrapping paper and its products, with a minimum of 70,000 pounds. As higher labor costs appear inevitable, any downward revision in transportation costs will be of substantial benefit to the paper and pulp industry.

## Mando Starts New Laboratory

INTERNATIONAL FALLS, Minn., September 4, 1945—Construction of a central research laboratory building on the United States-Canadian border, Minnesota, and expansion of the present research staff to include additional chemists, physicists and engineers, is announced by Donald D. Davis, President of Minnesota and Ontario Paper Company. Construction of the building is under way and completion is expected in the early spring. This is a part of the $6,000,000 expansion and modernization program recently announced for Mando plants and facilities at International Falls, and at Fort Frances and Kenora, Ontario The laboratory will be two stories high, 140 feet wide and 95 feet deep, and will consolidate the present research activities.

"The size of the laboratory will exceed 300,000 cubic feet and additional space, when needed, will be provided by adding to the building", M. S. Wunderlich, Director of Research, said. Dr. J. O. Burton will be in charge, with Mr. Wunderlich maintaining his headquarters at the general offices of the company in Minneapolis.

All of the company's research projects will be centralized and co-ordinated in the improvement and development of present products and processes and in the utilization of wood products heretofore not used in the manufacture of paper, structural insulation board and other forest products.

Mr. Wunderlich said the building will contain individual laboratories and research facilities for paper, pulp, by-products, paper coating, structural insulation board, physics and physical instrumentation, humidity and low temperatures, and space for the installation of pilot plants.

## Champion Texas Expansion Approved

PASADENA, Tex., August 30, 1945—The Champion Paper and Fibre Company has been advised of WPB approval of its plans for a $645,020 addition to Champion's wood pulp plant here.

## Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

| Current Weeks—1945 | | Corresponding Weeks—1944 | |
|---|---|---|---|
| July 21 | 89.8 | July 22 | 91.2 |
| July 28 | 93.4 | July 29 | 91.3 |
| Aug. 4 | 93.6 | Aug. 5 | 89.8 |
| Aug. 11 | 93.0 | Aug. 12 | 91.2 |
| Aug. 18 | 67.8 | Aug. 19 | 90.4 |
| Aug. 25 | *95.4* | Aug. 26 | 92.2 |

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1944 | 88.7 | 88.5 | 88.1 | 87.6 | 88.7 | 89.8 | 80.3 | 90.6 | 88.2 | 92.5 | 90.6 | 92.4 | 88.1 |
| 1945 | 86.7 | 89.4 | 90.2 | 88.1 | 89.8 | 91.2 | *80.8* | | | | | | |

COMPARATIVE YEARLY SUMMARIES

| | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 |
|---|---|---|---|---|---|---|---|---|
| Year to Date | 68.8 | 78.8 | 86.8 | 94.5 | 93.5 | 88.2 | 87.9 | *87.8* |
| Year Average | 71.5 | 83.4 | 85.6 | 97.4 | 90.4 | 87.8 | 88.1 | |

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

| Current Weeks—1945 | | Corresponding Weeks—1944 | |
|---|---|---|---|
| July 21 | 96 | July 22 | 94 |
| July 28 | 95 | July 29 | 96 |
| Aug. 4 | 94 | Aug. 5 | 96 |
| Aug. 11 | 94 | Aug. 12 | 96 |
| Aug. 18 | 67 | Aug. 19 | 93 |
| Aug. 25 | 99 | Aug. 26 | 94 |

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1944 | 90 | 96 | 95 | 96 | 96 | 96 | 85 | 96 | 92 | 95 | 95 | 85 | 93 |
| 1945 | 91 | 95 | 97 | 97 | 96 | 96 | *86* | | | | | | |

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

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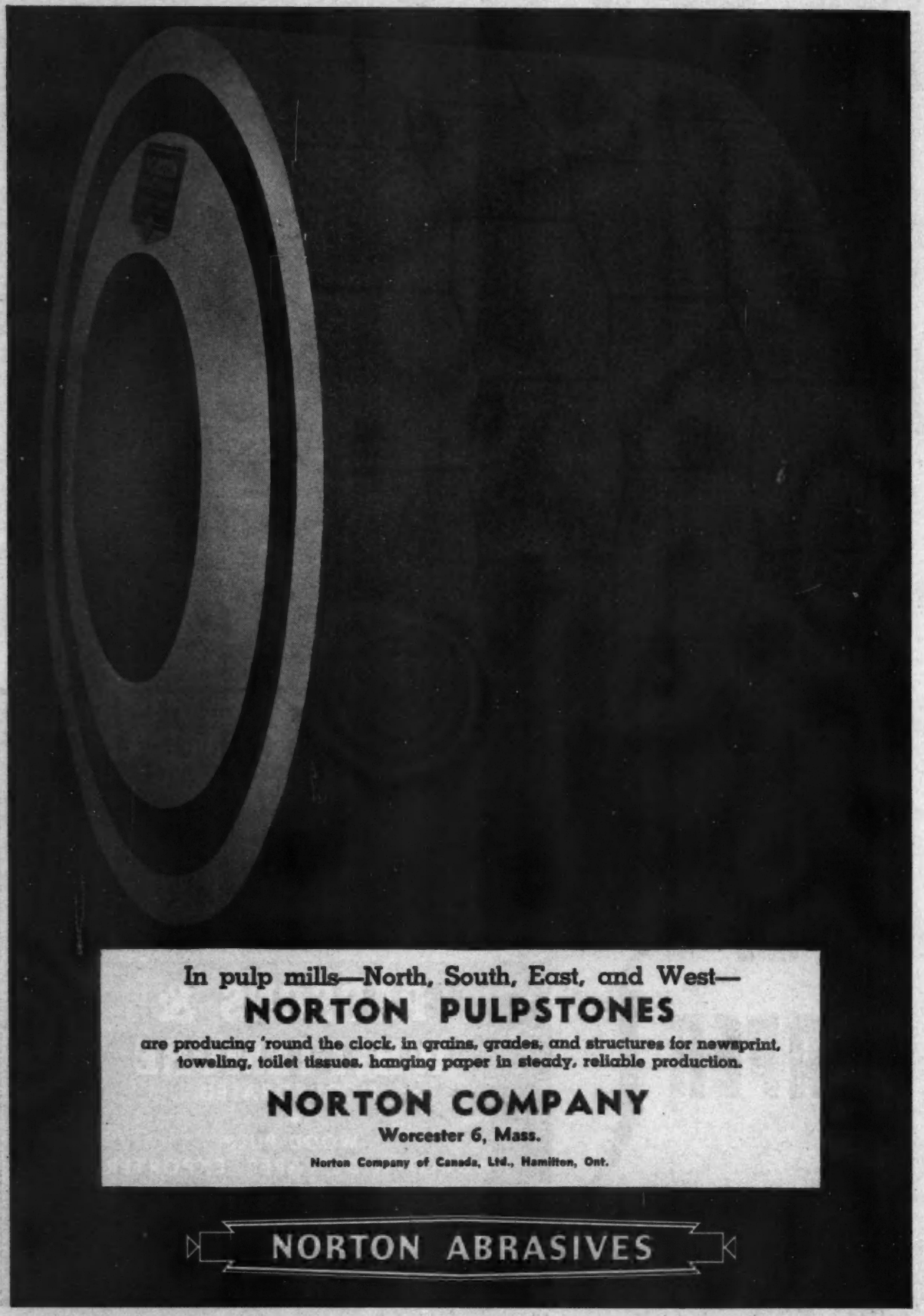

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# Heat Utilization in Rotary Kilns Burning Lime Sludge*

By Ralph Gibbs[1]

**Abstract**

*The economics of burning lime sludge in the rotary kiln to recover lime involves the fuel cost as the largest single item of operating expense.*

*In order to understand how the fuel is being used in the process, there is presented a study of the heat requirements of the various stages through which the processed material passes, and the magnitude of the heat losses that invariably accompany such processes are shown.*

*This paper presents a thermal analysis of the operation.*

The comparatively recent trend toward the recovery of caustic lime from lime sludges by those members of the paper industry recausticising their soda liquors is definitely a sound, economic move. Not only is a valuable byproduct recovered; but a satisfactory means of solving a serious waste disposal problem also has been found.

However, although the recovery of lime from this heretofore waste material has solved many old problems, it also poses some new ones. Among others are those concerning the conduction of a chemical process about which paper technicians previously had little or no specific experience, and all this in equipment quite foreign to their ordinary experiences, referring specifically to the burning of lime sludge in rotary kilns.

The burning of lime ordinarily is considered by the uninitiated to be an extremely simple matter.

* Presented by title at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 19-22, 1945.

[1] Consulting Chemical Engineer, York, Pa.

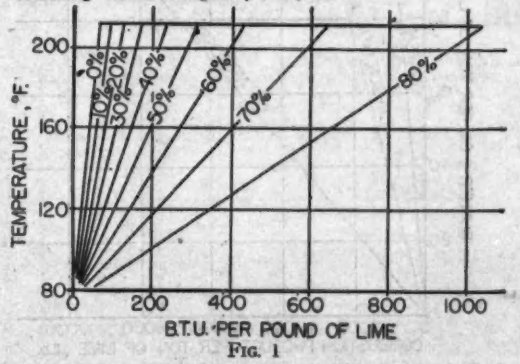


FIG. 1

**Heat Required to Raise Temperature of Kiln Feed with Various Water Content to 212° F.**

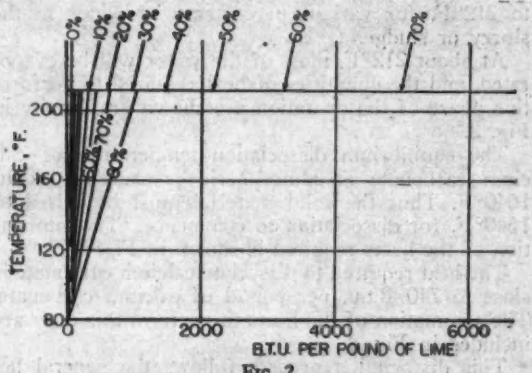


FIG. 2

**Heat Required to Raise Temperature of Kiln Feed to 212° F. and Evaporate Water**

However, as one becomes more familiar with the practical conduct and engineering features of the problem, the complexity becomes more apparent and it is realized that to conduct the process in the best manner possible requires experience and the full utilization of the best technical knowledge and the equipment available.

As in the conduction of any such process, the prime requisite is the production of a suitable product at an optimum cost. This sounds like an easy matter. And so it can be, depending upon the goal set for attainment. Thus it is within the scope of almost any rotary kiln operation to produce a lime of 75% available calcium oxide with a fuel consumption of 120 gallons of bunker C oil per ton of product. On the other hand it is equally easy to produce lime with 90% or more available calcium oxide with 70 or less gallons of bunker C oil per ton of product.

If the utilization of the heat involved in the various steps of the process under discussion is studied there will be a better understanding of what can be expected in the way of performance.

Of paramount importance, and before the utilization of heat is further discussed, it is essential to point out that which concerns the combustion process itself. Too frequently little effort is made to control properly this all-important item of the operation. Needless to say, it is essential to success to keep the combustion process balanced within practical limits. In other words the burning of the fuel must be so conducted that no great excess of air or fuel exists.

This is easily controlled by proper instrumentation for the analysis of the kiln gases.

### Kiln Feed and Its Heat Requirements

Ordinarily in this particular operation or process under discussion the material fed to the kiln contains a substantial quantity of water. Up to a certain point this water accompanying the solid material has very little effect on the over-all performance of the kiln. Beyond this point, however, the effects are serious in the demand for heat. This point will be discussed in detail later.

Following the course of the process from the time the feed material is introduced into the kiln, assume it is introduced at a temperature of 75°F. After it is deposited in the kiln the "load" or feed is exposed to the hot gases and hot walls of the kiln and its temperature is elevated and the water is evaporated. Sensible heat is utilized in raising the temperature to 212°F. or thereabouts. Figure 1 shows the heat required to bring the temperature of the "load" up to 212°F. for various percentages of water in the slurry or sludge.

At about 212°F. most of the water will be evaporated, and the quantities of heat required to perform this phase of the operation are shown graphically in Fig. 2.

The equilibrium dissociation temperature of calcium carbonate at atmospheric pressure is about 1640°F. Thus the solid material must be raised to 1640°F. for dissociation to commence. The summation of the heats required is shown in Fig. 3.

The heat required to dissociate calcium carbonate is close to 740 B.t.u. per pound of calcium carbonate. The summation of the heats to perform this duty are included in Fig. 4.

This dissociation process follows the general behavior of such chemical reactions which are accelerated at elevated temperatures. Consequently, in order to facilitate this conversion, temperatures in excess of 1640°F. are necessary. Thus the bulk of the processed material must be superheated. Figure 4 shows the summation of the heat requirements to process the original material fed to the kiln to various degrees of superheating.

In operating practice the burned or calcined material generally is discharged at some temperature lower than the maximum attained in the kiln. This lowering of temperature is accounted for in the kiln shell heat loss and heating the fuel-air mixture.

If no heat is recovered from the lime after it leaves the kiln proper, then for a heat requirement the total heat in the lime at the point of discharge from the kiln must be accepted. With properly designed coolers, possibly 50% of the sensible heat in the lime discharged from the kiln can be recovered and returned to the process in the form of preheated air for combustion.

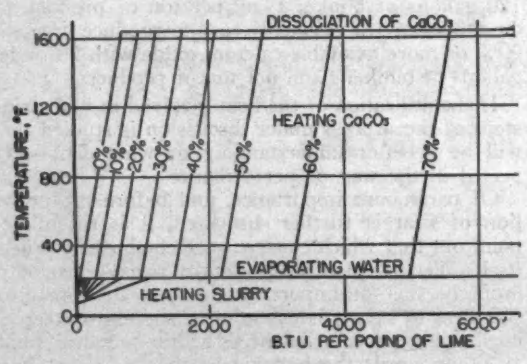


Fig. 3
**Heat Required to Evaporate Water and Raise Kiln Feed to 1640° F.**

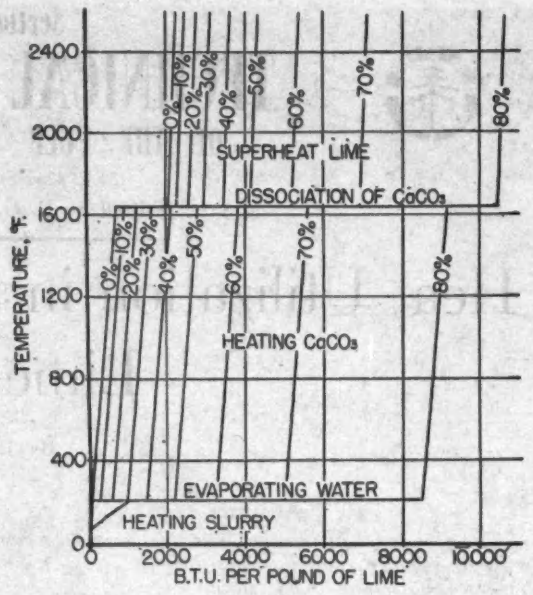


Fig. 4
**Heat Required to Calcine $CaCO_3$ and Superheat Lime**

In the above manner a description of the utilization of a portion of the heat necessary to produce a unit weight of lime has been presented.

### Heat in Exit Kiln Gases

The feed end of the kiln must now be studied for additional heat losses.

The hot gases and vapors leaving the kiln at the feed end carry with them quantities of heat depending upon the quantity of fuel fired and upon the quantity and water content of the material fed to the kiln.

Assuming that bunker C fuel oil is composed of 88% carbon and 12% hydrogen, Fig. 5 shows the

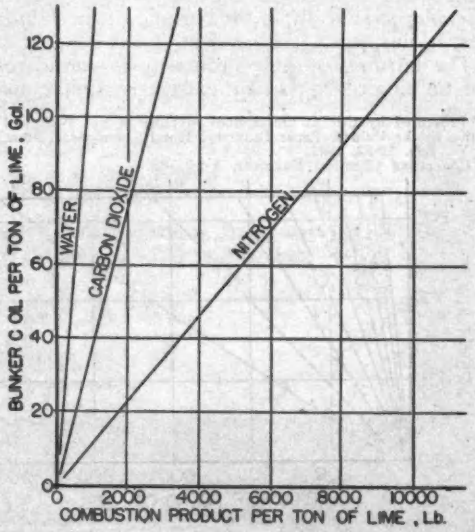


Fig. 5
**Weight of Combustion Products for Different Fuel Oil Firing Rates**

quantity of materials involved in the combustion process. Add to these the quantities of carbon dioxide (1570 pounds per ton of lime) and the water in the sludge of the feed, Fig. 6, some idea of the large quantities of these materials involved can be obtained, Fig. 7.

Figure 8 shows the quantity of heat that is lost in these escaping gases.

The importance of securing a good transfer of heat between these gases and the material is easily understood since, by so doing, heat will be returned to the system instead of being wasted.

It has been explained that the nature of the main chemical change is such that the equilibrium temperature is about 1640°F., and that higher temperatures are required to hasten this alteration. In practice the optimum maximum temperature is between 2250 to 2700°F. Thus the combustion and evolved gases at temperatures below these values are of little use except for the purpose of preparing the material for calcination. In other words, drying and preheating.

In dry feed processes the use of suitable and effective means of increasing the rate of heat transfer between the gases and material is not generally applied with the result that the escaping kiln gases commonly leave the kiln at temperatures of 1300 to 1500°F. Long kilns have been used in an attempt to reduce this waste-gas temperature and the corresponding heat loss, but there are limits to the economic length of a kiln.

In processes using wet feed, however, the use of chains in the feed end of the kiln affords an excellent means of increasing the heat transfer rate from the gases to the material being processed so that it is common under these conditions to have the gases leaving the kiln at 450 to 600°F. Thus heat in the gases equivalent to 600 to 1050°F. can be utilized in the evaporation of water. As a consequence 30 to 40% of water in the kiln feed has little over-all effect on the production rate or fuel requirement of the kiln compared to a dry process operation.

The quantity of water in the kiln feed below which little effect is manifest in the over-all kiln performance can be approximated as follows:

From Fig. 4 it is seen that the heat requirement at 2600°F. to calcine 1 pound of lime with no water in the feed amounts to 2250 B.t.u. or 4,500,000 B.t.u. per ton of lime. Thus this heat requirement is equivalent to 4,500,000/143,000 (approximate heating value of 1 gallon of bunker C oil) = 31.5 gallons of oil per ton of lime. Ordinarily this fuel requirement will be about 50% of the total so that approximately 63 gallons of oil will be the total requirement.

From Fig. 8 it can be seen that 1360 B.t.u. per pound of lime are wasted when the exit gases under

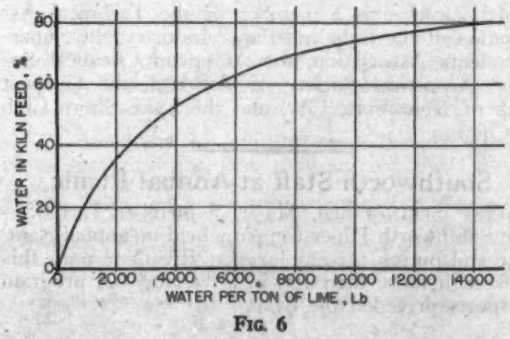


FIG. 6

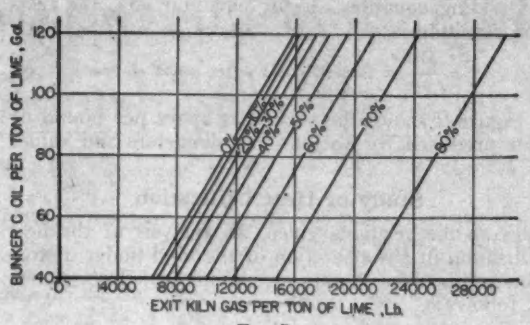


FIG. 7

the conditions assumed are exhausted at 1500°F. When these gases are exhausted at 500°F. the heat loss equivalent is 225 B.t.u. per pound. Thus 1135 B.t.u. per pound of lime can be used in heating and evaporating water, and this is equivalent to 36% of water in the kiln feed.

In addition to the utilization of heat as described, there is heat requirement that cannot be passed by without due consideration. This heat requirement is the kiln shell or kiln surface heat loss. In a previous article *(1)* the following emperical equation is given:—

$$Q = 1150\pi DL = \text{Over-all kiln shell loss, B.t.u. per hour.} \quad (1)$$

$\pi = 3.14$
$D =$ Kiln shell diameter in feet.
$L =$ Kiln shell length in feet.

In another article *(2)* is presented an emperical relation for the production rates of rotary kilns as:—

$$T = \frac{k\,D^3L}{100} = \text{Tons of lime per day, where} \quad (2)$$

$D$ and $L$ are as above.
$k$ is a constant of value depending upon the material being processed and other factors entering into the general conduct of the process. $k$ is, ordinarily, very close to 1.5 for the production of soft-burned lime from dry kiln feed.

Equation (2) can be changed to

$$t = \frac{k\,D^3L}{2400} = \text{Tons of lime per hour or} \quad (3)$$

$$t' = \frac{2000\,k\,D^3L}{2400} = \frac{k\,D^3L}{1.2} = \text{Pounds of lime per hour.}$$

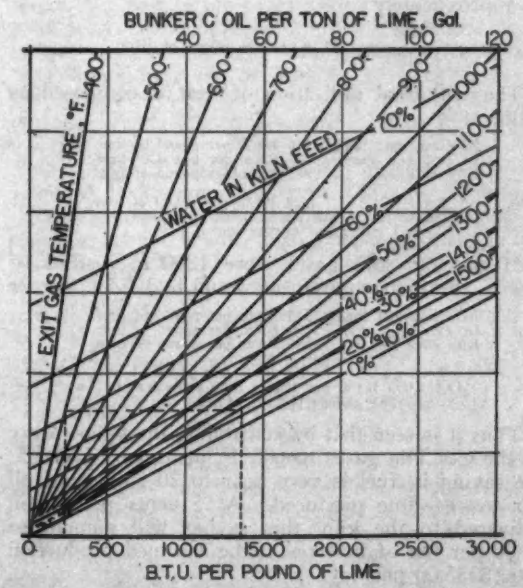


FIG. 8
Heat above 300° F. Lost in Exit Kiln Gases

Dividing equation (1) by equation (3), the relation resulting is:—

$$S = \frac{4340}{kD} = \text{Shell loss, B.t.u. per pound of lime.} \quad (4)$$

Figure 9 shows the shell heat losses per pound of lime produced for various kiln diameters and values of $k$.

### Study of Heat Utilization

From the relations given, an analysis of the heat utilization in any operation of the kind under discussion is possible. A typical example can be assumed as follows:

PROBLEM

How is the heat utilized in processing to lime a slurry containing 40% water in a kiln 8 feet diameter by 150 feet long and burning 65 gallons of bunker C oil per ton of lime with the exit kiln gases at 600°F. No lime coolers are used and the lime is discharged from the kiln at 2200°F. at a rate of 135 tons per day. Combustion is balanced.

SOLUTION

From Fig. 4 it is seen that 3540 B.t.u. are required to evaporate water, heat and calcine to 2200°F. 1 pound of lime from a slurry containing 40% of water.

Burning 65 gallons of oil per ton of lime to perform this operation results (Figs. 5 and 6) in:—

500 pounds of combustion-formed water.
2360 pounds of water from slurry.
1650 pounds of combustion-formed carbon dioxide.
1570 pounds of mineral carbon dioxide.
5550 pounds of nitrogen.

With the kiln gases leaving at 600°F., the heat leaving the system above 212°F. with these gases is:—

533,000 B.t.u. per ton of lime with the water vapor.
312,000 B.t.u. per ton of lime with the carbon dioxide.
560,000 B.t.u. per ton of lime with the nitrogen.

Total 1,405,000 B.t.u. per ton of lime produced, or
703 B.t.u. per pound of lime produced.

The kiln shell loss (Fig. 9) is found by solving for $k$, as

$$\frac{100T}{D^2L} = k = \frac{100 \times 135}{64 \times 150} = \frac{13{,}500}{9{,}600} = 1.41$$

and for the 8-foot diameter kiln shell this loss will be approximately

$$\frac{4340}{1.41 \times 8} = 385 \text{ B.t.u. per pound of lime.}$$

Thus the total utilization of heat is composed as follows:—

| | | |
|---|---|---|
| In discharged lime | 3540 | B.t.u. per pound of lime. |
| In exit kiln gases | 703 | B.t.u. per pound of lime. |
| Kiln shell loss | 385 | B.t.u. per pound of lime. |
| Total | 4628 | B.t.u. per pound of lime, or |

9,256,000 B.t.u. per ton of lime, equivalent to
64.7 gallons of oil per ton of lime.

If the exit kiln gases were 1200°F. instead of 600°F. the fuel requirement would be:—

| | | |
|---|---|---|
| In discharged lime | 3540 | B.t.u. per pound of lime. |
| In exit kiln gases | 2090 | B.t.u. per pound of lime. |
| Kiln shell loss | 385 | B.t.u. per pound of lime. |
| Total | 6015 | B.t.u. per pound of lime, or |

12,030,000 B.t.u. per ton of lime equivalent to
84 gallons per ton of lime.

Thus it is seen that by controlling the temperature of the exit kiln gases to 600°F. instead of 1200°F., the saving in fuel is very near to 20 gallons of oil per ton of lime produced. At 5 cents per gallon delivered to the kiln, this saving will amount to $1.00 per ton of lime or, at the assumed production rate, $135.00 per day.

The use of lime coolers would further better the fuel consumption. The equivalent heat in the lime when discharged at 2200°F. is 3540 B.t.u. per pound. At 200°F. (Fig. 4) it is approximately 3100 B.t.u. per pound. Thus by recovering 50% of this available heat, there would be (3540 — 3100) .50 = 220 B.t.u. per pound of lime returned to the system. This is equivalent to 440,000 B.t.u. per ton of lime or 3.1 gallons of oil per ton of lime. In terms of dollars, this represents a saving of $20.90 per day for which it is worth striving.

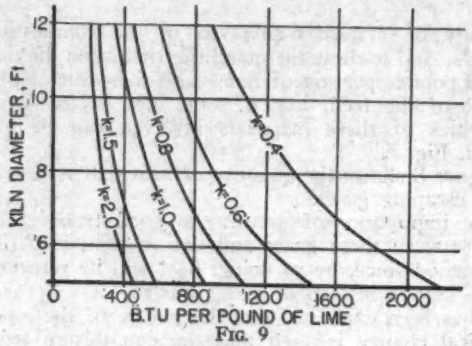


FIG. 9
Kiln Shell Heat Loss

### Literature Cited

1. Gibbs, Ralph, *Chem. & Met. Eng.*, April, 1944.
2. Gibbs, Ralph, *Rock Products*, Nov., 1942.

## Bill Zwecker Establishes Practice

William R. Zwecker, well known engineer in the Middle West has announced the establishment of his own consulting office and laboratory at 222 West Adams Street, Chicago 6, Ill. Mr. Zwecker will specialize in the development of new products, testing and research and production and management control in the pulp, paper, paperboard, plastics, and insulation industries.

This new activity is an outgrowth of his successful development work during the war for the Seaman Paper Company in Chicago where he developed unusual products for the aircraft and plastics industries.

Mr. Zwecker is an European educated chemical engineer with a Ph.D. degree and has had wide practical and technical experience in European and American mills. In the United States he developed cigarette papers and high grade carbonizing tissues for the Ancram Paper Mills. Later he was manager of the North American Pulp and Paper Corporation where he improved the grades of paper produced and developed the export outlets of their production. Following this he became assistant to the President of the Filer Fiber Company where he engaged in research. During the war he developed a number of new aircraft products for the Seaman Paper Company.

Mr. Zwecker is a member of the Technical Association of the Pulp and Paper Industry, the Superintendents Association, the American Chemical Society, Acoustical Society of America, the Chemist Club of New York City, and the Lake Shore Club of Chicago.

## Southworth Staff at Annual Picnic

WEST SPRINGFIELD, Mass., September 1, 1945—The Southworth Paper company held its annual clambake and outing for employes at Riverside park this week with more than 100 in attendance. A program of sports preceded the bake.

# The Utilization of the Milkweed Plant in the Paper and Paperboard Industry*

Loren V. Forman[1] and Donald Niemeyer[2]


## Abstract

*The pulping characteristics of the principal fibrous components of the milkweed stem were investigated from the standpoint of their potential use as a raw material in the paper and paperboard industry. These components were the whole stalk, the bast fiber, and the woody material of the stalks.*

*Bleached pulps prepared from the whole stalks had strength characteristics exceeding those of normal hardwood pulps but less than those of the common softwood pulps. The pulps had low viscosities and required only mild beating treatment. Many dirt specks, originating from the latex, wax, and shives in the milkweed, were present. Because of the lower yield of pulp and the requirements for special processing to reduce the dirt content, bleached milkweed pulp probably would not be able to compete with the common wood pulps.*

*The stalks were given a dry rod-milling and screening treatment, in order to separate the long bast fiber from the short-fibered, woody fraction. Approximately 15% of bast fiber and 70% of woody material were present in the stalks, the balance being dust which would be of little value in papermaking.*

*The bleached pulps produced from the bast fiber were similar to flax pulp in appearance and in physical characteristics. The pulps had a relatively high alpha-cellulose content and a low viscosity. The similarity with flax pulp suggests that milkweed bast fiber might be utilized in the manufacture of cigarette paper. However, the small yield of bast fiber would necessitate the use of the rejected woody fraction for other paper products. One of these products, which showed some promise, is corrugating board comprised of a mixture of cooked and refined woody material and unbleached kraft cuttings or waste. Although the bursting strength and tearing strength of the milkweed woody fraction were low, the short fibers should improve formation and impart stiffness to the paperboard.*

*Pulp prepared from the whole milkweed stalks, under cooking conditions approximating those used for commercial straw pulping, indicated that corrugating board with greater stiffness and tearing strength could be obtained from the stalks than from straw. Because milkweed stalks gave a higher yield of pulp than straw and had certain advantages in strength, the use of the stalks in paperboard manufacture should be technically feasible. From an economic and practical point of view, however, collection and transportation of the stalks to the mill would be a serious problem which would have to be overcome before a successful enterprise could be expected.*


The necessity of substituting milkweed floss for Java kapok in the war program led the Office of Production Research and Development of the War Production Board to establish a project at The Institute of Paper Chemistry dealing with the components of milkweed. The production of floss from cultivated areas would permit collection of the entire milkweed plant which would serve as a possible source of raw materials that are essential for war purposes. The economic recovery and utilization of other components of the milkweed would reduce the cost of the floss. Among the many phases of this problem which were studied was the possibility of using milkweed stalks for paper and paperboard manufacture.

## Raw Material

The milkweed is a dicotyledonous plant in which the vascular tissue forms a continuous ring without distinct bundles. This is the familiar arrangement found in flax, hemp, and jute, as well as in the majority of stems of herbaceous plants.

In the center of the older stem is a large space which was originally filled with pith parenchyma cells. The pith area constitutes about 25% of the total cross sectional area of the stem. A few fragments of the pith cling to the woody ring which surrounds the pith area. This wood or xylem is made up of vessels, fibers, and ray parenchyma tissue. These fibers are approximately 0.5 mm. long and occupy at least 50% of the xylem.

Outside of the xylem is a very narrow layer of cambium and beyond it lies the phloem, consisting of sieve tubes, bast fibers, latex tubes, and storage and conductive parenchyma. In the older stem, a so-called bark material outside of the cambium layer probably occupies 10 or 15% of the stem area.

In the main, there are two types of fibers which might take part in the papermaking process: the bast fiber present in the phloem and the vessels and fibers in the xylem. The cells which make up the bast fiber occur in rows of bundles with each bundle surrounded by parenchyma and associated latex vessels. According to Gerhardt [Gerhardt, F. Commercial possibilities of the common milkweed. *Ind. Eng. Chem.* 22:160-163 (1930)] the fiber cells are from 15 to 25 mm. and from 0.25 to 0.50 mm. in diameter. The cells are soft, pliable, and light colored; they are finer in texture than hemp and resemble flax very closely in appearance. The stalks contain approximately 10% bast fiber and 70% woody fiber.

Two species were studied—namely, (1) *Asclepias incarnata,* swamp or lowland milkweed and (2) *Asclepias syriaca,* upland milkweed.

## Study of Whole Milkweed Stems for High-Grade Pulps

The whole milkweed stems were chopped into 2- to 4-inch lengths and were pulped in a gas-fired rotary digester, using the soda and neutral sulphite processes. The yield was determined after washing the cooked material in a muslin-covered wash box. Each of these pulps was defibered in a 5-pound Dilts beater equipped with a washing drum. Various periods of

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washing were applied in order to leave different amounts of short, woody fiber in the pulp.

A three-stage bleaching process was then applied. If the degree of cooking was adequate so that a relatively clean bleached pulp was obtained, beater strength evaluations were made. The beater consistency was 1.52% on the moisture-free basis in each instance. Sheets were formed using Institute Method T 411. Cook 4, an exploratory experiment, did not yield sufficient pulp to permit bleaching and strength evaluation.

Cooks 15, 17, 18, and 19 had small quantities of Celite and Hexalin added to the digester charge. The Celite was included to determine whether it would adhere to the latex particles and prevent them from agglomerating to a size such that their presence in the pulp would be objectionable from the standpoint of dirt specks. Hexalin was added with the expectation of dissolving the waxes in order to facilitate access of the cooking chemical to the fibrous material and, hence, to promote uniform pulping.

In order to compare the yield data of the laboratory cooks with the actual cellulose content of the milkweed stems, chemical analyses were made. These data are given in Table I. Cooking conditions, yields, and washing data are presented in Table II, bleaching data in Table III, and strength characteristics in Table IV.

In order to produce a bleachable pulp from the whole milkweed stems, drastic cooking conditions were necessary. In soda cook 17, a reduced temperature and chemical ratio resulted in a pulp which contained woody material that was extremely resistant to bleaching. It was observed in other experiments that the bast fiber could be easily purified by mild cooking and bleaching. The hard woody material, if insufficiently pulped, remained in the bleached pulp in the form of shives.

The data of Table IV indicated that the beating time to 400-ml. Schopper freeness was about 15 minutes. This is the amount of beating required to reduce the length of the bast fiber to a degree such that it could be satisfactorily handled during sheet making.

The neutral sulphite process produced pulps of higher yield, strength characteristics, and viscosity than those obtained by the soda process. A sulphite pulp produced from northern spruce or a bleached

TABLE II.—COOKING, WASHING, AND YIELD DATA ON WHOLE MILKWEED STALKS

(Upland Variety)

| Cook | 4 | 13 | 18 | 17 | 19 | 15 |
|---|---|---|---|---|---|---|
| Process | Soda | Soda | Soda | Soda | Neutral Sulphite | Neutral Sulphite |
| Rotary digester | 3 | 3 | 1 | 3 | 2 | 1 |
| Chemical ratio (based on moisture-free stalks), NaOH as NaOH, % | 35 | 35 | 28 | 24 | 3 | 3 |
| $Na_2SO_3$ as $Na_2SO_3$, % | .. | .. | .. | .. | 30 | 30 |
| Water ratio, ml. water/g. moisture-free stalks | 10 | 10 | 10 | 10 | 10 | 10 |
| Hexalin, % | .. | .. | 0.5 | 0.5 | 0.5 | 0.5 |
| Celite, % | .. | .. | 4.0 | 4.0 | 4.0 | 4.0 |
| Maximum temperature, °C. | 178 | 178 | 174 | 170 | 180 | 174 |
| Time to maximum temperature, hr. | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Time at maximum temperature, hr. | 5.0 | 5.0 | 5.0 | 5.0 | 4.5 | 4.5 |
| Unscreened yield (basis moisture-free stalks), % | 36.1 | .. | 47.2 | 53.8 | 64.0 | 62.2 |
| Washing time in Dilts beater, min. | 180 | .. | 10 | 10 | 8 | 8 |
| Yield after washing (basis moisture-free beater charge), % | 22.6 | .. | 73.0 | 71.3 | 66.4 | 70.5 |
| Over-all yield after washing (basis moisture-free stalks), % | 8.2 | .. | 34.4 | 38.4 | 42.4 | 43.9 |

For all cooks: Digester charge, 1200 grams of moisture-free stalks.

TABLE III.—BLEACHING AND YIELD DATA ON PULPS FROM WHOLE MILKWEED STALKS

(Upland Variety)

| Cook | 13 | 18 | 19 | 15 |
|---|---|---|---|---|
| Process | Soda | Soda | Neutral Sulphite | Neutral Sulphite |
| Chlorine used as chlorine water, % available Cl | 3.0 | 7.25 | 5.0 | 7.0 |
| Number of chlorinations | 1 | 3 | 2 | 2 |
| Number of caustic extractions | 1 | 3 | 2 | 2 |
| Chlorine used as calcium hypochlorite, % available Cl | 3.0 | 5.5 | 4.5 | 5.5 |
| Number of hypochlorite stages | 3 | 2 | 4 | 3 |
| Total available chlorine used, % | 6.0 | 12.75 | 9.5 | 12.5 |
| Brightness, % | 74.1 | 78.8 | 70.0 | 70.8 |
| Alpha-cellulose, % | 84.0 | 79.4 | 80.9 | 79.2 |
| Cuprammonium viscosity, centipoises | 8.0 | 7.9 | 22.8 | 23.1 |
| Yield (basis unbleached pulp), % | ... | 80.0 | 79.5 | 81.2 |
| Over-all yield (basis moisture-free stalks), % | 31.0 | 27.3 | 33.7 | 35.6 |

Constant Conditions:
Chlorination—20° C., 3.0% consistency
Caustic extraction—40° C., 10.0% consistency, 1.0% NaOH, 1 hr.
Hypochlorite stage—40° C., 5.0% consistency

TABLE IV.—STRENGTH CHARACTERISTICS OF BLEACHED PULPS PRODUCED FROM WHOLE MILKWEED STALKS

(Upland Variety)

| Cook | | 13 | 18 | 19 | 15 |
|---|---|---|---|---|---|
| Process | | Soda | Soda | Neutral Sulphite | Neutral Sulphite |
| | Interval, min. | | | | |
| S. R. freeness, ml. | 15 | 435 | 420 | 410 | 400 |
| | 30 | 290 | 225 | 230 | 240 |
| | 45 | 230 | 160 | 160 | 160 |
| | 60 | 175 | ... | ... | 120 |
| Basis weight (25×40—500), lb. | 15 | 45.0 | 46.1 | 46.2 | 46.9 |
| | 30 | 45.4 | 45.4 | 45.5 | 46.4 |
| | 45 | 45.1 | ... | ... | 46.5 |
| | 60 | 49.0 | .. | .. | .. |
| Apparent density | 15 | 12.0 | 14.0 | 13.5 | 13.5 |
| | 30 | 13.5 | 16.0 | 14.5 | 15.0 |
| | 45 | 14.5 | ... | ... | 16.0 |
| | 60 | 16.0 | .. | .. | .. |
| Bursting strength, points/100 lb. | 15 | 60 | 77 | 83 | 86 |
| | 30 | 67 | 78 | 102 | 102 |
| | 45 | 72 | .. | .. | 107 |
| | 60 | 74 | .. | .. | .. |
| Tear factor | 15 | 0.76 | 0.80 | 1.54 | 1.39 |
| | 30 | 0.70 | 0.66 | 1.21 | 1.12 |
| | 45 | 0.64 | ... | ... | 0.99 |
| | 60 | 0.55 | ... | ... | ... |
| Schopper tensile, lb./in. | 15 | 20.9 | 23.6 | 24.6 | 25.1 |
| | 30 | 22.4 | 23.6 | 29.0 | 29.8 |
| | 45 | 23.5 | ... | ... | 30.8 |
| | 60 | 26.4 | ... | ... | ... |
| Stretch, % | 15 | 2.0 | 2.7 | 2.7 | 2.2 |
| | 30 | 2.2 | 2.8 | 2.9 | 2.6 |
| | 45 | 2.5 | .. | .. | 2.9 |
| | 60 | 2.4 | .. | .. | .. |
| Opacity, B. and L., % | 15 | 76.9 | 71.1 | 61.0 | 63.1 |
| | 30 | 75.0 | 65.6 | 58.3 | 57.8 |
| | 45 | 73.3 | ... | ... | 54.7 |
| | 60 | 73.6 | ... | ... | ... |

TABLE I.—CHEMICAL ANALYSIS OF MILKWEED STALKS AND SEPARATED FRACTIONS

| Material Analyzed | Decorticated Bast Fiber | Upland Stalks | Lowland Stalks | Upland Bast Fiber | Lowland Bast Fiber | Upland Woody Fraction Retained on 40-Mesh Screen | Lowland Woody Fraction Retained on 40-Mesh Screen | Upland Fines through 40-Mesh Screen | Lowland Fines through 40-Mesh Screen |
|---|---|---|---|---|---|---|---|---|---|
| Acetone solubility,[1] % | ... | 4.0 | 2.2 | 2.6 | 2.3 | 3.5 | 2.5 | 6.3 | 7.4 |
| Alcohol-benzene solubility,[1] % | 26.4 | 3.8 | 1.8 | 4.3 | 4.2 | 4.3 | 2.1 | 7.4 | 6.7 |
| Hot water solubility,[2] % | ... | 9.4 | 4.3 | 10.4 | 9.5 | 8.3 | 6.7 | 15.2 | 17.6 |
| Holocellulose,[3] % | ... | 56.8 | 62.0 | 71.3 | 74.2 | 55.6 | 56.8 | 40.8 | 36.6 |
| Alpha-cellulose,[3] % | 44.9 | 35.7 | 38.6 | 61.4 | 64.3 | 32.5 | 34.2 | 27.8 | 23.0 |
| Lignin,[4] % | ... | 17.2 | 24.1 | 4.6 | 7.0 | 20.2 | 25.4 | 12.5 | 14.8 |

All results calculated on a moisture-free, unextracted basis.
[1] The sample was extracted successively with acetone, alcohol-benzene, and hot water.
[2] Determined on extracted material.
[3] Determined on holocellulose residue.
[4] Determined on acetone and alcohol-benzene extracted material.

kratt pulp from southern pine would be far superior to milkweed stem pulp in yield and strength. On the other hand, the milkweed pulp would probably be stronger than the common hardwood pulps. Because of the lower over-all yield, the lower density of the raw material with consequent lower yield per digester, and the possible high dirt content from soil particles, latex, wax, and shives, it is doubtful whether bleached pulp made from whole milkweed stalks could compete on an economical basis with the common bleached pulps, unless some particular property was present which would make it outstanding for use in a specialty paper.

### Separation of Bast Fiber from Milkweed Stalks

Because the bast fiber of the milkweed stalks contains a large proportion of long fibers, it would seem that, if this fraction were separated before pulping, it would probably make a stronger paper than the whole stalk which includes a large amount of the short, woody fibers.

The method of separation of the bast fiber involved rod milling and screening. A Marcy rod mill (12- by 24-inch) was charged with 500 grams (on the dry basis) of the milkweed stems as received. After 10 minutes of rod milling, the material was transferred to a gyratory screen. The upland variety was screened on an 8-mesh screen. A 12- and a 40-mesh screen were used for the succesive fractions passing through the coarser screen. The fiber of the lowland variety separated readily, so that a single screening on a 12-mesh wire gave a good separation. Much of the woody material in the upland variety was reduced to a small particle size, because of its brittle nature. However, the woody material in the lowland variety remained in the form of large resilient fragments.

In another type of operation, sodium hydroxide and water were added to the rod-mill charge, and the temperature was raised to 95° C. with steam. After 10 minutes of treatment with the rods, the pulp was screened on a 40-mesh gyratory screen with a stream of water spraying on the pulp. The washing was continued until the effluent water contained very little of the milkweed fines.

The results of the chemical analysis of the various milkweed fractions obtained with the dry treatment are included in Table I. The rod milling conditions and the screening yields are given in Table V.

According to this method of separation, approximately 15% of the milkweed stalks was bast fiber. Although some of the bast fiber was reduced to a small particle size, so that it appeared with the rejects, this was roughly equivalent to the amount of woody material which remained in the bast fiber fraction.

As shown in Table I, the alpha-cellulose content of the bast fiber was over 60%, as compared with less than 40% in the original milkweed. The lignin associated with the bast fiber was appreciably lower than in the whole stem, although the extractive content was about the same as in the original stalks.

TABLE V.—ROD MILLING AND SCREENING OF MILKWEED STALKS

| Variety | Upland | | Lowland |
|---|---|---|---|
| Number of charges | 1 | 18 | 36 |
| NaOH added to rod mill, % | 12.0 | | |
| Temperature, °C. | 95 | 20 | 20 |
| Consistency (moisture-free), % | 15.0 | 88.0 | 88.0 |
| Bast fiber recovered, % | | 16.2 | 15.2 |
| Shives on 8-, 12-, and 40-mesh, % | | 70.2 | 65.5 |
| Fines through 40-mesh, % | | 7.2 | 16.5 |
| Total yield after rod milling and screening, % | 39.6 | 93.6 | 97.2 |

### Bast Fiber of Milkweed Stems for High-Grade Pulps

Several exploratory cooks on milkweed bast fiber were made in small stationary autoclaves, heated by means of an oil bath. The bast fiber of both varieties separated in the dry rod milling and screening, and the decorticated bast fibers were used in these experiments. With the results of these cooks as a guide, conditions were selected for four soda cooks and a neutral sulphite cook, which were performed in rotary digesters on the dry separated bast fiber and on the caustic rod-milled and wet-screened upland milkweed stalks.

The pulps of cooks 5, 6 and 11 were washed in the Dilts beater after slushing with 500 ml. of Hexalin, which was added to the normal water suspension of pulp. No Hexalin, was used in the beater for cooks 16 and 20, in which both Hexalin and Celite were applied in the digester. Several of the pulps were bleached by a multistage process. Beater evaluations were made on the unbleached and bleached pulps.

In cook 5, on upland bast fiber, the time at maximum temperature was 5 hours. The same conditions were used for cook 16 except that the time at maximum temperature was decreased to 3.5 hours. The latter cook, which was washed only 7 minutes in the Dilts beater, contained many woody particles which were resistant to bleaching. In order to obtain a clean pulp, severe bleaching conditions would have been necessary. The accompanying degradation of the bast fiber would have weakened this pulp excessively. For this reason, it was discarded after partial bleaching.

Cooking conditions, washing procedures, and yield

TABLE VI.—COOKING, WASHING, AND YIELD DATA ON MILKWEED BAST FIBER

| Cook | 3 | 1 | 2 | 5 | 16 | 20 | 6 | 11 |
|---|---|---|---|---|---|---|---|---|
| Raw material | Decorticated Bast Fiber | Dry Rod-milled Upland | Caustic Rod-milled Upland | Dry Rod-milled Upland | Dry Rod-milled Upland | Dry Rod-milled Upland | Dry Rod-milled Lowland | Dry Rod-milled Lowland |
| Digester | Autoclave* | Autoclave* | Autoclave* | Rotary | Rotary | Rotary | Rotary | Rotary |
| Digester charge (moisture-free), g. | 400 | 400 | 400 | 1500 | 1200 | 1200 | 1500 | 1200 |
| Chemical ratio (based on moisture-free charge): | | | | | | | | |
| NaOH as $Na_2O$, % | 24.0 | 24.0 | 28.0 | 24.0 | 24.0 | 3.0 | 24.0 | 24.0 |
| $Na_2SO_3$ as $Na_2SO_3$, % | | | | | | 30.0 | | |
| Water ratio, ml. water/g. moisture-free charge | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| Hexalin, % | | | | | 0.5 | 0.5 | | |
| Celite, % | | | | | 4.0 | 4.0 | | |
| Maximum temperature, °C. | 176 | 170 | 170 | 170 | 170 | 178 | 170 | 170 |
| Time to maximum temperature, hr. | 1.5 | 2.0 | 2.25 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Time at maximum temperature, hr. | 5.0 | 5.0 | 5.0 | 5.0 | 3.5 | 4.5 | 5.0 | 5.0 |
| Unscreened yield (basis moisture-free charge), % | 38.6 | 60.0 | 56.0 | 58.4 | 58.5 | 68.6 | 68.9 | 75.0 |
| Washing equipment | 40-mesh Gyratory | 40-mesh Gyratory | Dilts | Dilts | Dilts | Dilts | Dilts | Dilts |
| Washing time, min. | | 5 | 5 | 60 | 7 | 7 | 60 | 60 |
| Yield after washing (basis unwashed charge), % | | 78.7 | 38.0 | 85.0 | 90.0 | 80.9 | 86.5 | 71.2 |
| Over-all yield after washing (basis whole stalk), % | | 8.3 | 8.4 | 8.0 | 8.5 | 9.7 | 9.6 | 8.0 |

* Stationary, 4-liter capacity.

data for the milkweed bast fiber are presented in Table VI, bleaching data in Table VII, and strength characteristics in Table VIII.

The yield of bast fiber pulp (based on the whole stalk) was less than 10% in each instance. Only a small increase in yield was obtained in cooks 16 and 20 by using a short washing period in the Dilts beater. The yield values reported for the bast fiber separated before cooking were practically identical with the yield of cook 4, shown in Table II. This cook of the whole milkweed stalks was washed in the Dilts beater until the wash water was free of fines. In other words, the the separation of bast fiber appears to have been made after the milkweed was cooked.

The bast fiber pulps bleached to a relatively high brightness under mild conditions. The bleached pulps had a high alpha-cellulose content and a low viscosity. The dirt content was relatively low in cooks 5 and 6 because of the increased washing efficiency resulting from the addition of Hexalin to the Dilts beater. Although 500 ml. were used, equally good results might have been obtained with the same amount of Hexalin applied to a larger amount of pulp at higher consistency. The concentration of Hexalin in these experiments amounted to approximately 0.5% of the weight of the water charged to the washing beater. The addition of Hexalin and Celite to the digester in cook 20 was not as effective from the standpoint of dirt content in the pulps as was washing with Hexalin in the beater.

The bast fiber pulps were characterized by their slimy nature and long fibers. In these respects, the pulp resembled flax pulp. Above a Schopper freeness of 500 ml., the sheet formation was very poor.

The data of Table VIII indicated that the upland variety had slightly better strength characteristics than the lowland type when identical cooking conditions were used for the two varieties. This advantage might be offset by the slightly higher yield and lower latex

TABLE VII.—BLEACHING AND YIELD DATA ON PULPS FROM MILKWEED BAST FIBER

| Cook | 5 | 16 | 20 | 6 |
|---|---|---|---|---|
| Variety | Upland | Upland | Upland | Lowland |
| Chlorine as chlorine water, % | 1.25 | 2.0 | 2.0 | 0.75 |
| Number of chlorinations | 1 | 2 | 1 | 1 |
| Number of caustic extractions | 1 | 2 | 1 | 1 |
| Chlorine as calcium hypochlorite, % | 0.5 | | 1.0 | 0.25 |
| Number of hypochlorite stages | 1 | | 1 | 1 |
| Total chlorine consumed, % | 1.75 | | 3.0 | 1.0 |
| Brightness, % | 82.7 | | 77.6 | 79.1 |
| Alpha-cellulose, % | 92.2 | | 90.6 | 94.8 |
| Cuprammonium viscosity, centipoises | 11.2 | | 9.7 | 11.0 |
| Yield (basis unbleached charge), % | | | 97.3 | |
| Over-all yield (basis moisture-free stalks), % | | | 9.5 | |

Constant Conditions:
Chlorination—20° C., 3.0% consistency.
Caustic extraction—40° C., 10.0% consistency, 1.0% NaOH, 1 hr.
Hypochlorite stage—40° C., 5.0% consistency.

content observed in the lowland milkweed bast fiber pulp.

The neutral sulphite process applied to the upland bast fiber produced a stronger pulp which beat faster than the comparable soda pulp.

The similarity in fiber structure and beating characteristics between milkweed bast fiber pulp and flax pulp suggests that a use might be developed for this material in the manufacture of cigarette paper. In view of the low yield, it does not seem that a separation of milkweed to produce a pulp from the bast fiber would be feasible unless a desirable product could be made from the rejected woody fractions.

### Whole Milkweed Stems for Board Pulps

One of the possible uses for milkweed stalks might be as a total or partial substitute for straw or unbleached kraft pulps in the manufacture of paperboard. To demonstrate the feasibility of this application for milkweed, 9-point board handsheets were made and evaluated for physical characteristics.

Pulp was prepared from the upland stalks by cooking with soda ash. Defibering was carried out in the Dilts beater by circulating with the roll in a raised position for a period of 10 minutes. The roll was lowered to zero clearance and the pulp was beaten

TABLE VIII.—STRENGTH CHARACTERISTICS OF PULPS PRODUCED FROM MILKWEED BAST FIBER

| Cook | | 5 | | 20 * | 6 | |
|---|---|---|---|---|---|---|
| Process | | Soda | | Neutral Sulphite | Soda | |
| Variety | | Upland | | Upland | Lowland | |
| | Beating Time, min. | Unbleached | Bleached | Bleached | Unbleached | Bleached |
| Freeness, S.R., ml. | 15 | 795 | 795 | 710 | 730 | 815 |
| | 30 | 645 | 625 | 370 | 480 | 510 |
| | 45 | 420 | 410 | 210 | 310 | 310 |
| | 60 | 285 | 270 | 140 | 200 | 210 |
| | 75 | 180 | 170 | | 130 | 135 |
| Basis weight (25×40—500), lb. | 15 | 46.1 | 46.4 | 47.3 | 43.6 | 39.0 |
| | 30 | 44.8 | 46.8 | 46.3 | 44.8 | 42.4 |
| | 45 | 46.5 | 46.3 | 46.3 | 44.7 | 45.4 |
| | 60 | 47.3 | 45.5 | 44.5 | 45.8 | 45.6 |
| | 75 | 47.3 | 45.9 | | 45.8 | 45.7 |
| Apparent density | 15 | 7.0 | 8.0 | 9.0 | 8.0 | 8.0 |
| | 30 | 8.5 | 10.0 | 10.5 | 9.5 | 10.0 |
| | 45 | 11.0 | 11.5 | 11.5 | 11.0 | 11.5 |
| | 60 | 13.0 | 12.5 | 13.0 | 12.5 | 13.5 |
| | 75 | 13.5 | 13.5 | | 14.0 | 15.0 |
| Bursting strength, points/100 lb. | 15 | 41 | 45 | 62 | 47 | 39 |
| | 30 | 56 | 61 | 76 | 55 | 55 |
| | 45 | 67 | 70 | 84 | 56 | 60 |
| | 60 | 76 | 72 | 86 | 66 | 66 |
| | 75 | 80 | 75 | | 70 | 63 |
| Tear factor | 15 | 5.03 | 4.53 | 5.33 | 4.54 | 4.31 |
| | 30 | 3.42 | 2.99 | 2.83 | 2.43 | 2.08 |
| | 45 | 2.37 | 1.99 | 1.97 | 1.59 | 1.39 |
| | 60 | 1.88 | 1.58 | 1.51 | 1.29 | 1.12 |
| | 75 | 1.50 | 1.31 | | 1.00 | 0.74 |
| Schopper tensile, lb./in. | 15 | 11.2 | 10.6 | 15.0 | 10.2 | 8.6 |
| | 30 | 14.4 | 14.0 | 19.6 | 14.0 | 14.3 |
| | 45 | 17.6 | 18.2 | 22.2 | 16.7 | 17.4 |
| | 60 | 21.4 | 19.8 | 22.5 | 18.8 | 19.4 |
| | 75 | 24.3 | 23.1 | | 20.9 | 20.1 |
| Stretch, % | 15 | 2.7 | 2.7 | 3.1 | 2.5 | 2.8 |
| | 30 | 3.0 | 2.9 | 2.7 | 2.6 | 3.5 |
| | 45 | 2.6 | 3.4 | 2.9 | 2.9 | 2.5 |
| | 60 | 3.7 | 3.3 | 3.2 | 2.7 | 3.0 |
| | 75 | 3.7 | 3.1 | | 3.0 | 3.3 |
| Opacity, B. and L., % | 15 | | | 74.3 | | |
| | 30 | | | 70.7 | | |
| | 45 | | | 72.9 | | |
| | 60 | | | 73.0 | | |

* 5500 grams on bedplate.

TABLE IX.—DATA ON SODIUM CARBONATE COOK OF WHOLE MILKWEED STALKS

(Upland Variety)

| | |
|---|---|
| Cook | 14 |
| Rotary digester | 1 |
| Chemical ratio (based on moisture-free stalks), $Na_2CO_3$ as $Na_2CO_3$, % | 16.0 |
| Water ratio, ml. water/g. moisture-free stalks | 7 |
| Maximum temperature, °C. | 150 |
| Time to maximum temperature, hr. | 2.0 |
| Time at maximum temperature, hr. | 3.0 |
| Unscreened yield (basis moisture-free stalks), % | 89.3 |
| Washing time in Dilts beater, min. | 10 |
| Yield after washing (basis moisture-free beater charge), % | 63.5 |
| Over-all yield after washing (basis moisture-free stalks), % | 56.6 |

for 15 minutes to a Schopper freeness of 370 ml. After washing for 10 minutes, the freeness was 640 ml. The pulp was thickened and the yield was determined.

The rod mill was also used for preparing pulp for board handsheets. Both varieties of milkweed stalks were rod milled with 8% sodium hydroxide according to the conditions given in Table V. The yield of pulp from the upland variety after this operation was 71.6%. The pulp was not washed, because only a small amount of caustic was present after rod milling.

Beating was performed in a 1.5-pound beater and board handsheets were prepared on a Williams mold, masked to produce an 8-inch square sheet. After pressing and drying, the sheets were calendered lightly.

Handsheets were also prepared from a mixture of the caustic rod-milled milkweed stalks and repulped old newspaper.

The cooking conditions and yield data for the soda ash cook are presented in Table IX. The data obtained in evaluating the pulps in the form of board handsheets are given in Table X. The values obtained on sheets prepared in a similar manner from a laboratory lime-cooked wheat straw pulp are included in this table.

The Hinde and Dauch ring test used for evaluating the paperboards was a compression test performed on

TABLE X.—PHYSICAL CHARACTERISTICS OF BOARD MADE FROM MILKWEED STALKS

| | Cook 14 Soda Ash Upland | Caustic Rod-milled Upland Unbeaten | Caustic Rod-milled Upland Beaten | 75% Caustic Rod-milled Upland Beaten 25% News | Caustic Rod-milled Lowland Beaten | 75% Caustic Rod-milled Lowland Beaten 25% News | Laboratory Cooked Wheat Straw |
|---|---|---|---|---|---|---|---|
| Beating time, min. | 45 | | 10 | | 45 | | |
| Freeness, S.R., ml. | 315 | 760 | 360 | | 160 | | |
| Basis weight (24×36—480), lb. | 102.0 | 93.2 | 90.3 | 100.2 | 81.3 | 80.6 | 85.0 |
| Caliper, in. | 0.0107 | 0.0122 | 0.0095 | 0.0109 | 0.0121 | 0.0121 | 0.0109 |
| Bursting strength, points/100 lb. | 40 | 19 | 32 | 36 | 22 | 20 | 45 |
| Tear factor | 1.70 | 2.26 | 1.43 | 1.43 | 1.08 | 1.07 | 1.08 |
| H. and D. ring test, lb. | 27.9 | 11.7 | 25.2 | 21.6 | 14.9 | 12.8 | 17.7 |

TABLE XI.—COOKING CONDITIONS AND YIELD DATA ON MILKWEED WOODY FIBER

| Cook | 7 | 8 | 9 | 10 | 12 |
|---|---|---|---|---|---|
| Variety | Upland | Upland | Upland | Lowland | Lowland |
| Digester | Auto-clave* | Auto-clave* | Auto-clave* | Auto-clave* | Rotary |
| Digester charge (moisture-free), g. | 400 | 400 | 400 | 400 | 1200 |
| Chemical ratio (based on on moisture-free charge), $Na_2CO_3$ as $Na_2CO_3$, % | 16.0 | | | | 16.0 |
| $Ca(OH)_2$ as $Ca(OH)_2$, % | | 20.0 | | 20.0 | |
| Unscreened yield (basis moisture-free charge), % | 59.7 | 68.2 | 73.3 | 90.5 | 59.4 |

* Stationary—4-liter capacity.

For all cooks:

| | |
|---|---|
| Water ratio, ml. water per g. (moisture-free) charge | 7 |
| Maximum temperature, °C. | 150 |
| Time to maximum temperature, hr. | 2 |
| Time at maximum temperature, hr. | 3 |

the Hinde and Dauch instrument. In this application, the test measured the stiffness of the board.

The woody fiber of the lowland stalks was too resistant to permit adequate defibering in the rod-milling operation. This was reflected in the lower strength of the board sheets. Apparently, more drastic pulping conditions, such as a lime or soda ash cook, would be required for pulping the lowland variety for this purpose.

Both methods of converting upland milkweed to pulp appeared to be practical. The soda ash cook gave a stronger and stiffer board. It seemed to excel in stiffness, a desirable characteristic for corrugating board.

The addition of old newsprint to the milkweed resulted in little change in the strength characteristics.

If the laboratory results can be duplicated in commercial operation, it would be feasible to use milkweed stalks as a substitute for straw and certain repulped waste papers. Milkweed might command a higher price than straw because it produced a higher yield of pulp.

### Hard, Woody Fraction for Board Pulp

If the bast fiber of the milkweed stalks were to be used in the manufacture of high-grade pulp, it would be necessary to utilize the woody fraction for a salable product. This material would constitute 70% of the stalks on the basis of the data in Table V. The most logical use would be to incorporate the woody material in paperboard. For this application the fine dust particles obtained in the bast fiber separation probably would not serve a useful purpose. However, the fines might be used as a fuel.

The rejects were cooked either with lime, soda ash, or water. After obtaining yield data, all the pulps, except that of cook 12, were defibered in the 1.5-pound beater. For the latter cook, the pulp was defibered in the rod mill before the beater treatment.

Handsheets were prepared on the Noble and Wood sheet mold according to the method used for the whole milkweed paperboard. In addition, old newsprint and kraft were mixed with some of the pulp.

TABLE XII.—PHYSICAL CHARACTERISTICS OF BOARD MADE FROM MILKWEED WOODY FIBER AND FROM PODS

| Cook | 7 | | 8 | | 9 | | 10 |
|---|---|---|---|---|---|---|---|
| Type of cook | Soda Ash | 75% Cook 7 | Lime | 75% Cook 8 | Water | 75% Cook 9 | Lime |
| Furnish | Upland Rejects | 25% News | Upland Rejects | 25% News | Upland Rejects | 25% News | Lowland Rejects |
| Basis weight (24×36—480), lb. | 90.5 | 93.6 | 91.4 | 91.7 | 87.1 | 88.9 | 87.0 |
| Caliper, in. | 0.0113 | 0.0120 | 0.0117 | 0.0128 | 0.0117 | 0.0125 | 0.0114 |
| Bursting strength, points/100 lb. | 27 | 26 | 18 | 18 | 15 | 17 | 19 |
| H. and D. ring test, lb. | 23.3 | 17.0 | 18.8 | 16.6 | 14.6 | 14.2 | 19.2 |
| Tear factor | 0.52 | 0.63 | 0.45 | 0.60 | 0.36 | 0.48 | 0.40 |

| Cook | 10 | 12 |
|---|---|---|
| Furnish | 75% Cook 10 25% News | 75% Cook 12 25% Kraft | 50% Cook 12 50% Kraft |
| Basis weight (24×36—480), lb. | 92.5 | 85.4 | 103.0 |
| Caliper, in. | 0.0129 | 0.0105 | 0.0114 |
| Bursting strength, points/100 lb. | 19 | 43 | 73 |
| H. and D. ring test, lb. | 18.2 | 31.0 | 29.3 |
| Tear factor | 0.52 | 1.45 | 1.08 |

Cooking conditions and yield data are outlined in Table XI. The results of the physical evaluation of the handsheets are given in Table XII.

The small particle size of the woody material after it was pulped contributed to a low freeness and a low wet strength which made board sheet making difficult. The soda ash cook produced pulp which was somewhat better than that obtained with lime or water cooking. The low bursting and tearing strength of the reject pulps suggests that it would be necessary to add another pulp to the furnish. The selection of old newsprint for this purpose was of no benefit, because the two types of pulp were similar to each other in their physical characteristics. However, the use of kraft cuttings and kraft waste with the milkweed woody fraction might be feasible. It is possible that the milkweed rejects would add stiffness to the kraft board and might result in improved strength because of better formation in a mixture of long fibered kraft and short woody fibers.

## Plastics in Practice

The McGraw-Hill Book Company has recently issued a new book on "Plastics in Practice" by John Sasso, managing editor of Product Engineering and Michael A. Brown, Jr., of the Plastics Division of the Monsanto Chemical Company, (185 pp. 8x10¾). This book gives a practical review of plastics in all of their commercial applications. The treatment is organized around 103 actual uses of plastics, reviewing the problem encountered in developing them and outlining the reasons for the solutions adopted, and giving much valuable information on plastics materials, methods of fabricating, and design and cost factors, related directly to specific uses. It has been specially prepared for individuals who are not expert in knowledge of plastics and gives brief, easily understood descriptions of the more common plastic materials.

The case studies are presented in an illuminating way and covers such proven products as radio cabinets, flashlights, telephone handsets, cable insulation, automobile parts, name plates, plant equipment and piping, tote boxes, battery containers, advertising signs and novelties, etc. New developments such as nylon styrene thermoplastics, shoe soles, silicone resins, post formed laminates, pulp preform, molded parts, resin paper sheets, etc. are covered.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $4.00 per copy.

## Packaging Catalog

Recently, an item appeared in the TAPPI Bulletin, published by the Technical Association of the Pulp and Paper Industry, describing the current issue of the Packaging Catalog. Because of the large number of companies and individuals that responded it is felt that many readers of the PAPER TRADE JOURNAL may be interested in obtaining this 950 page volume, which is essentially an encyclopaedia or year book of developments in the field of packaging and materials. It covers such subjects as cartons, boxes, bags, seals, envelopes, labels, cans, tubes, closures, adhesives, coatings, wrappings, laminations, plastics, machinery, merchandising, etc. The charts and tables are excellent and include package and materials testing, properties of coatings and adhesives, wet-strength papers, plastic and patents.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $4.00 per copy ($5.00 plus customs in Canada). Remittances should accompany orders. The number of copies available this year is limited because of the paper restriction order.

## TAPPI Notes

Earl G. Hallonquist, formerly of Rayonier, Inc., is now Chemist for the Plywood Research Association, 620 East 26th Street, Tacoma, Wash.

E. G. Mullen is now General Manager of W. Ralston & Co., Inc., Old Bridge, N. J.

J. O. Younger, formerly of the Northern Regional Research Laboratory is now with the Mehl Mfg. Company, 2351 Ferguson Road, Cincinnati 5, Ohio.

Ralph B. Millington, formerly of Carters Ink Company is now Development Engineer for the Wood Flong Corporation, Hoosick Falls, N. Y.

P. F. Neuman is now Manager of Technical Service for the Paper Makers Chemical Dept. of the Hercules Powder Company, Wilmington, Del.

The TAPPI Delaware Valley Section will meet at the Engineers Club, Philadelphia, Pa. on Friday, October 5, 1945 at 6:30 p.m. A group of speakers will discuss papers developed as a result of the war effort. The new U. S. Navy film relating to the utilization of waste materials for war purposes will be shown.

The Watertown Group of the Empire State Section will meet at the Woodruff Hotel, Watertown, N. Y. on Thursday, September 13th at 7 p.m. Henry Mellen of the Hercules Powder Company will discuss "Sizing and Size Extenders".

## U. S. Investigating German Secrets

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 4, 1945—George M. Hunt, acting director of the United States Forest Products Laboratory at Madison, Wis., reported Friday, August 31, that eight staff members of the laboratory and several representatives of paper and lumber companies have been in Germany since June investigating industrial and technical secrets of forest products industries there.

Carlile P. Winslow, laboratory director, heads the staff in Germany organized by government agencies, Mr. Hunt said.

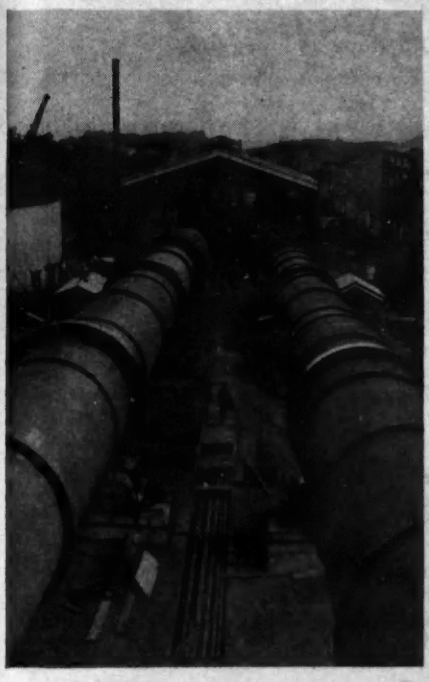
Particular attention of the investigators, he added, was given to cellulose products, wood sugar, ethyl alcohol, feeding yeasts and other products of wood that supplied Germany's war machine for five years, and new methods of lignin utilization, wood treatment, timber construction and seasoning and preservation of wood.

The Germans are said to have produced a nitrocellulose for explosives from low grade wood pulps with superior stability qualities.

## Capt. Fish Back on the Job

WORCESTER, Mass., September 3, 1945—Captain Lincoln D. Fish, of the U. S. Army, has been placed on the inactive list. About November 1, he will resume his former position as salesman in the Worcester territory for the C. A. Esty Paper Company here. Captain Fish was in the service from 1942. He was in all the campaigns, from Africa to the surrender of Germany. He was honored with a number of decorations.

# PAPER MILL OPERATORS



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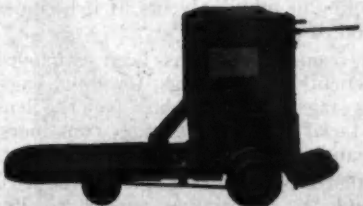
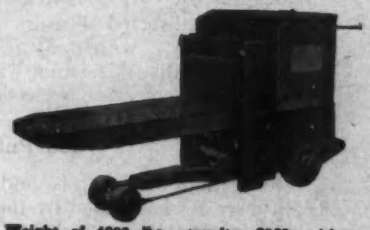
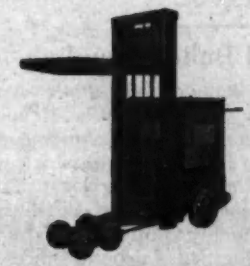


Platform size 24 x 42 x 11" high, low position; 15" high when elevated. Capacity: 2000, 3000, and 4000 pounds.

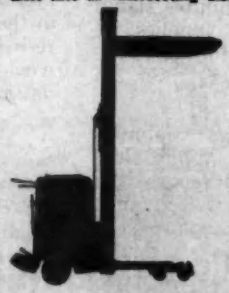
Capacity 2000 lbs. on forks 30" long. Truck turns from a 5' aisle into an intersecting aisle of 5'.



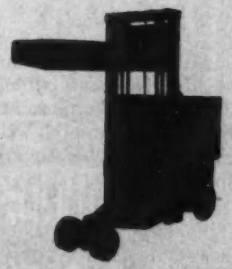
Weight of 4000 lbs. capacity—3250, without battery. Truck turns from a 5' 4" aisle into an intersecting aisle of 4'



Platform 24" wide, 53" long and 11" high, low position. Capacity 2000, 3000 and 4000 pounds.



The Wright-Hibbard Telescoping high lift truck is designed to operate in the most congested areas of factories and warehouses. The exceptionally narrow width and short overall length found in other Wright-Hibbard trucks are retained in this model.



Platform 24" wide, 94" long and 9" high, low position. Weight of 4000 lb. capacity—3000 without battery.

# New York Paper and Pulp Market Review

## Reconversion In Paper Industry Hampered By Retention of Production Controls—More Wood Pulp Expected In Fourth Quarter Collections of Waste Paper Declining—New Cotton Rag Active.

Office of the PAPER TRADE JOURNAL,
Wednesday, September 5, 1945.

Reconversion to a peacetime economy is progressing at a relatively good pace, although the partial lifting of governmental controls continues to slow down the actual transition to normalcy. A case in point is the revocation of controls limiting the use of paper and paper products but the retention of production restrictions. The effect may be described as applying power to one wheel of a vehicle and no power to the other wheels, the result being little forward movement. It is to be hoped that all controls over manufacture and a new, rational and equitable selling base price for paper may be formulated soon by the OPA. Without more complete cooperation of all government agencies with industry's aims to speed up production to insure a high rate of prosperity and full employment, reconversion must fail to be effected with the utmost dispatch in the best interests of the national welfare.

No important change in the paper market is reflected in current conditions. The future supply situation appears favorable, with the prospect of more wood pulp available in the fourth quarter. Newsprint is the exception. Overseas shipments are too heavy to provide an adequate home supply. This is definitely unfavorable as newspaper advertising is a potent channel for promoting business.

Paper production for the week ended August 25 was estimated at 95.4%, compared with 92.2% for 1944, with 91.2% for 1943, with 83.3% for 1942, and with 102.4% for the corresponding week in 1941.

Paperboard production for the week ended August 25 was 93.0%, compared with 96.0% for 1944, with 96.0% for 1943, with 77.0% for 1942, and with 97.0% for the corresponding week in 1941.

WPB has directed all users of newsprint to reduce their orders 5% with mills for September delivery. It was stated that this action was taken because U. S. orders for September exceeded supply by 11,000 tons.

### Wood Pulp

Revocation of controls and allocations of wood pulp were recommended by the Advisory Committee on Order M-93, on October 1. The committee stated present indications are that adequate supplies of wood pulp will be available in the fourth quarter.

### Rags

Mill buying of new cotton cuttings continues steady. Demand extends to all grades. White shirt cuttings and unbleached grade are still reported in inadequate supply. Prospects are good for a much increased supply in sixty days. All prices firm and unchanged.

Buying of old cotton rags is less active this week. This is widely considered as merely temporary. A heavy demand is expected in old whites and blues soon. Prices are steady at ceiling levels.

### Old Rope and Bagging

No change has been reported in the old rope market this week.

Somewhat less activity is currently reported in No. 1 gunny. Trading in scrap bagging continues relatively quiet, with buyers showing very limited interest in this grade. Prices are unchanged.

### Old Waste Paper

Collections of waste paper are decreasing in the metropolitan area. Official announcement that the city would discontinue its paper salvaging operations, is perhaps indicative of the declining interest to collect waste materials by the general public. Mill inventories are relatively good and the supply situation is rather widely reported as favorable.

## More Resin-Bonded Paper Available

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 5, 1945—Resin-bonded paper, used during the war largely for military maps because of its strength when wet and its ability to withstand rough treatment under battle conditions, is beginning to enter into the manufacture of civilian products, according to the National Bureau of Standards, Department of Commerce.

The use of synthetic resins in paper to hold the fibers together with an insoluble bond was developed by the Bureau in cooperation with the paper industry. The project, a continuing one, is an example of work done by the Bureau primarily for war purposes which may have wide and important civilian applications in peacetime.

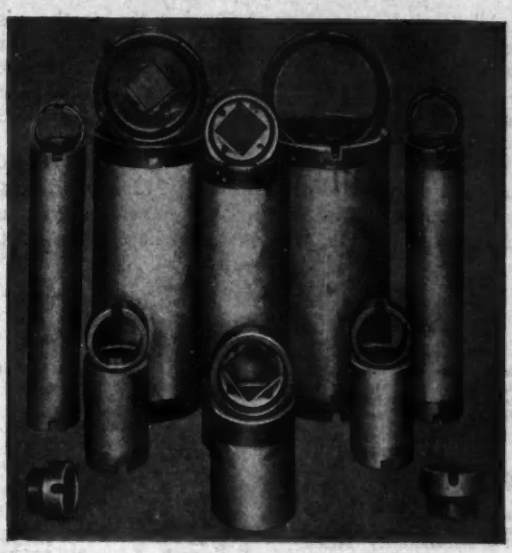
Paper of this type is now being produced that can be successfully laundered with hot water and soap or cleaned in gasoline or other solvents, if it becomes soiled with mud, oil or grease.

More recently resin-bonding has been employed with important benefits in wrappings, toweling, bags, posters, shipping tags, photographic papers, lens wiping tissues, facial tissues, garbage containers, diaper backing, handkerchiefs and field-note books.

An indication that the same technique can be used to reduce the tendency of printing papers to alter their dimensions, curl, wave and buckle with changes in the weather, suggests the possibility of extending resin-bonding into that field. Here the improvement would be of more benefit to the printer than to the ultimate users of the papers.

## Heppenstall Builds New Lab

PITTSBURGH, Pa., August 30, 1945—Approximately $170,000 is being invested by the Heppenstall Company for the construction and equipment of a new research laboratory. The new laboratory will be housed in a two-story brick building located on the corner of Hatfield and 46th Streets, Pittsburgh. It will be directly opposite the company's plant and a half-block away from the firm's general offices.



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Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability. — **CORES**

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# MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, September 5, 1945.

BLANC FIXE—Quotations on blanc fixe continue unchanged. Demand is reported fair. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Current demand active. June output lower at 2,142,000 pounds. Quotations continue unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots, at works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound, f.o.b. shipping point. Imported 21 to 23 cents.

CAUSTIC SODA—Demand continues very heavy. Deliveries delayed. Supply tight in dry grades. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 per 100 pounds; all in drums, car lots, at works.

CHINA CLAY—Quotations in china clay are unchanged. Current demand is reported fair. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand heavy with essential requirements met. Brightness of paper attained by chlorine revoked. Quotations unchanged. Chlorine is currently quoted at $1.75 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—No offerings or sales. "G" gum rosin is quoted at $6.74 per 100 pounds, in barrels, at Savannah; "FF" rosin at $6.70 per 100 pounds in barrels, at New York; seventy per cent gum rosin size at $6.95 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake are reported unchanged for the current week. Consumption is reported moderate at this date. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand continues for all-over requirements. Bagged lots still slow. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Current corn receipts are up this week and demand is active. Prices firm at this date. Starch prices continue unchanged. The pearl grade is quoted at $3.72 per 100 pounds; powdered starch at $3.83 per 100 pounds; all prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Demand reported good. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.25 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand active. Annual contracts are quoted at $16 per long ton, f.ob. mines; the price at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand good. Domestic grades are currently quoted at from $16 to $21 per ton at mines; Canadian at $24 per ton. All prices in car lots.

# MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

## Paper

(Delivered New York)

| | | | |
|---|---|---|---|
| **Standard News, per ton—** | | | |
| Roll, contract | *$61.00 | @ | — |
| Sheets | 69.00 | @ | — |
| *OPA Maximum Price. | | | |
| **Kraft—per cwt.—Carload Quantities Zone A, Delivered** | | | |
| Superstandard Wrapping | *$5.25 | @ | — |
| No. 1 Wrapping | *5.00 | " | — |
| Standard Wrapping | *4.75 | " | — |
| Standard Bag | *4.375 | " | — |
| *OPA Manufacturers' Prices. | | | |
| **Tissues—Per Ream—Carlots** | | | |
| White No. 1 | 1.12½ | " | — |
| White No. 1 M. G. | 1.10 | " | — |
| White No. 1½ | 1.00 | " | — |
| White No. 2 | .90 | " | — |
| Anti-Tarnish M.F. | 1.20 | " | — |
| Colored | — | " | — |
| Kraft | .95 | " | — |
| Manila | .90 | " | — |
| **Toilet—1 M. Sheets—Per Case** | | | |
| Unbleached | 4.25 | " | — |
| Bleached | 5.70 | " | — |
| Unbl. Toilet, 1 M. | 4.16 | " | — |
| Bleached Toilet | 5.70 | " | — |
| **Paper Towels, Per Case—** | | | |
| Unbleached, Jr. | 2.20 | " | — |
| Bleached, Jr. | 3.20 | " | — |
| **Manila—per cwt.—C. l. f. a.** | | | |
| No. 1 Jute | 11.25 | @ | — |
| No. 1 Manila Wrapping, 35 lb. | 6.00 | " | 6.25 |
| No. 2 Manila Wrapping, 35 lb. | 5.75 | " | 6.00 |
| **Boards, per ton—** | | | |
| News | *50.00 | @ | — |
| Chip | *50.00 | " | — |
| Sgl. Mla. Lt. Chip | *62.00 | " | — |
| White Pat. Coated | *75.00 | " | — |
| Kraft Liners 50 lb. | *63.00 | " | — |
| Binders Boards | 84.00 | " | 116.00 |

*OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

**Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:**

| | Bonds | Ledgers |
|---|---|---|
| 100% Rag Est. No. 1 | $39.10@$46.00 | $40.35@$47.25 |
| 100% Rag | 32.20 " 37.75 | 33.35 " 39.25 |
| 85% Rag | .... " .... | 29.90 " 35.00 |
| 75% Rag | 23.00 " 27.00 | 24.15 " 28.25 |
| 65% Rag | .... " .... | 22.80 " 27.75 |
| 50% Rag | 18.70 " 22.75 | 19.90 " 24.25 |
| 25% Rag | 16.40 " 20.00 | 17.55 " 21.50 |

Colors at $1.00 cwt. extra.

**Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:**

| | Bonds | Ledgers |
|---|---|---|
| No. 1 | $10.55@$12.75 | $11.70@$14.25 |
| No. 2 | 9.65 " 11.75 | 10.80 " 13.25 |
| No. 3 | 9.20 " 11.25 | 10.35 " 12.50 |
| No. 4 | 8.90 " 10.75 | 10.05 " 12.25 |

Colors $1.00 cwt. extra.

**Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:**

| | | | |
|---|---|---|---|
| No. 1 Glossy Coated | $13.65 | @ | $15.30 |
| No. 2 Glossy Coated | 12.40 | " | 14.04 |
| No. 3 Glossy Coated | 11.60 | " | 13.26 |
| No. 4 Glossy Coated | 11.15 | " | 12.75 |
| No. 1 Antique (watermarked) | 10.25 | " | 11.71 |
| No. 2 Offset | 9.60 | " | 11.04 |
| A Grade E. F. | 9.35 | " | 10.73 |
| A Grade S. & S. C. | 9.60 | " | 11.00 |
| B Grade E. F. | 8.85 | " | 10.23 |
| B Grade S. C. | 9.10 | " | 10.50 |
| C Grade E. F. | 8.55 | " | 9.73 |
| C Grade S. C. | 8.80 | " | 10.00 |
| D Grade E. F. | 8.25 | " | 9.38 |
| D Grade S. & S. C. | 8.50 | " | 9.75 |

Ivory & India at $.50 cwt. extra.

## Wood Pulp

**OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight Not Exceeding OPA Allowances.**

| | |
|---|---|
| Bl. Softwood Sulphite | $86.00 |
| Unbl. Softwood Sulphite | 74.00 |
| Bl. Hardwood Sulphite | 83.50 |
| Unbl. Hardwood Sulphite | 71.50 |
| Bl. Mitscherlich | 81.00 |
| Unbl. Mitscherlich | *72.00 @ 82.00 |
| N. Bleached Sulphate | 86.00 |
| S. Bleached Sulphate | 79.00 |
| N. Semi-Bleached Sulphate | 82.00 |
| S. Semi Bleached Sulphate | 75.00 |
| N. Unbl. Sulphate | 73.00 |
| S. Unbl. Sulphate | 63.50 |
| Bl. Soda | 76.00 |
| Unbl. Soda | 72.00 |
| Groundwood | 50.00 |

**Transportation Allowances**

**Applying to Producers of Wet Wood Pulp.**

| | Below 50% Air Dry Weight |
|---|---|
| Northeast | $13.50 |
| Lake Central | 13.50 |
| Southern | 16.00 |
| West Coast (in area) | 10.50 |
| West Coast (out area) | 16.50 |

| | 50%-80% Air Dry Weight |
|---|---|
| Northeast | 11.50 |
| Lake Central | 11.50 |
| Southern | 14.00 |
| West Coast (in area) | 9.50 |
| West Coast (out area) | 15.50 |

**Applying to Producers of Dry Wood Pulp.**

| | Above 80% Air Dry Weight |
|---|---|
| Northeast | $8.50 |
| Lake Central | 8.50 |
| Southern | 11.00 |
| West Coast (in area) | 7.50 |
| West Coast (out area) | 13.50 |

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

## Domestic Rags

**New Rags**

(Prices to Mill f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| **Shirt Cuttings—** | | | |
| New White, No. 1 | 6.50 | @ | 7.25* |
| Silesias No. 1 | — | " | 5.75* |
| New Unbleached | 6.75 | " | 7.50* |
| Blue Overall | — | " | 5.50* |
| Fancy | — | " | 3.50* |
| Washables | — | " | 4.00* |
| Bleached Khaki Cuttings | — | " | 4.25* |
| Unbleached Khaki Cuttings | — | " | 3.50* |

*OPA Maximum Prices

CLINTON

STARCHES

*Special Grades for*
*Beater, Calender and*
*Tub Sizing.*

•

QUALITY
UNIFORMITY
SERVICE

•

**CLINTON COMPANY**
Clinton, Iowa

*Kalamazoo* GLAZED TILE

— The Finest Material for Paper Mill Needs —

Hundreds of paper mill executives and engineers know that Kalamazoo Tile construction costs less—lasts longer—controls stock better—requires less maintenance—and is more flexible as to size or design in meeting production layouts.

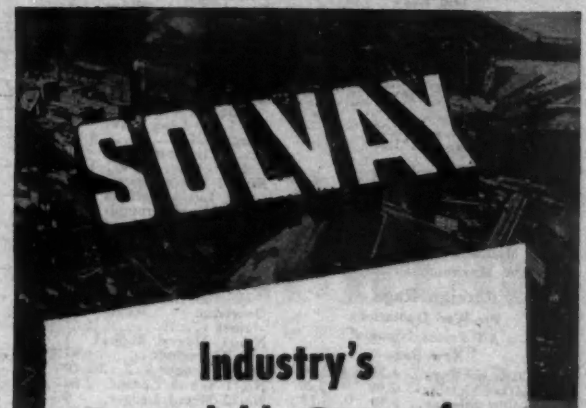
No other material equals the smooth, hard surface that is impervious to most chemicals—flushes clean—does not flake, pit or scale—and is free from friction.

Should fins—midfeathers—agitators—round—square or tapered ends, corners and bottoms be needed—the exclusive Kalamazoo method makes it easy to construct and moderate in cost, usually less than reinforced concrete.

Ask for engineering data.

*Kalamazoo* TANK & SILO CO.
KALAMAZOO - MICHIGAN



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Cleveland • Detroit • New Orleans • New York
Philadelphia • Pittsburgh • St. Louis • Syracuse

### Old Rags

| | | | |
|---|---|---|---|
| White, No. 1— | | | |
| Repacked | *3.80 | " | — |
| Miscellaneous | *3.20 | " | — |
| White, No. 2— | | | |
| Repacked | *2.90 | " | — |
| Miscellaneous | *2.65 | " | — |
| Thirds and Blues— | | | |
| Repacked | *2.20 | " | — |
| Miscellaneous | *1.30 | " | — |
| Roofing Rags— | | | |
| No. 1 | *1.55 | " | — |
| No. 2 | *1.45 | " | — |
| No. 3 (bagging) | *1.35 | " | — |
| No. 4 | *1.35 | " | — |
| No. 5A | *1.35 | " | — |
| Old Manila Rope | 5.75 | " | — |

* OPA Maximum Prices.

## Foreign Rags

Pre-War Quotations

All Prices Nominal

### New Rags

| | | | |
|---|---|---|---|
| New Dark Cuttings | 2.25 | @ | 2.40 |
| New Mixed Cuttings | 2.00 | " | 2.20 |
| New Light Silesias | 5.50 | " | 5.75 |
| Light Flannelettes | 5.50 | " | 5.75 |
| New White Cuttings | 7.00 | " | 7.50 |
| New Light Oxfords | 4.00 | " | 4.50 |
| New Light Prints | 3.00 | " | 3.25 |

### Old Rags

| | | | |
|---|---|---|---|
| No. 1 White Linens | 7.50 | " | 8.50 |
| No. 2 White Linens | 6.50 | " | 7.50 |
| No. 3 White Linens | 4.50 | " | — |
| No. 4 White Linens | 2.25 | " | 3.25 |
| No. 1 White Cotton | 4.25 | " | 4.75 |
| No. 2 White Cotton | 3.25 | " | 3.75 |
| No. 3 White Cotton | 2.50 | " | 3.00 |
| No. 4 White Cotton | 1.90 | " | 2.20 |
| Extra Light Prints | 2.00 | " | 2.40 |
| Ord. Light Prints | 1.75 | " | 2.15 |
| Med. Light Prints | 1.55 | " | 1.95 |
| Dutch Blue Cottons | 2.25 | " | 2.50 |
| French Blue Linens | 3.00 | " | — |
| Checks and Blues | 2.00 | " | — |
| Linsey Garments | 1.90 | " | 2.00 |
| Dark Cottons | 1.50 | " | 1.60 |
| Old Shopperies | 1.30 | " | 1.45 |
| New Shopperies | 1.45 | " | 1.50 |
| French Blues | 2.25 | " | 2.50 |

## BAGGING

(Prices to Mill, f. o. b. N. Y.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | Nominal | | |
| Domestic | 3.25 | @ | 3.30 |
| Wool Tares, light | 3.25 | " | 3.50 |
| Wool Tares, heavy | 3.50 | " | 3.75 |
| Bright Bagging | 3.25 | " | 3.50 |
| Manila Rope— | | | |
| Foreign | — | " | — |
| Domestic | *5.75 | " | — |
| Jute Threads | 5.50 | " | — |
| No. 1 Sisal Strings | *4.00 | " | — |
| Mixed Strings | 2.00 | " | — |

* OPA Maximum Prices.

## Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices, Baled

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | @ | — |
| No. 1 Hard White Envelope Cuts | 3.12½ | " | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| No. 1 Hard White Shavings, ruled | 2.50 | " | — |
| Soft White Shavings, one cut | 2.87½ | " | — |
| No. 1 Soft White Shavings | 2.50 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 Fly Leaf Shavings | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Mixed Groundwood Fly Leaf Shavings | .90 | " | — |
| Mixed Colored Shavings | .75 | " | — |
| Mixed Groundwood Colored Shavings | .90 | " | — |
| Overissue Magazines | 1.67½ | " | — |
| No. 1 Heavy Books & Magazines | 1.92½ | " | — |
| Mixed Books | 1.10 | " | — |
| No. 1 White Ledger | 2.30 | " | — |
| No. 2 Mixed Ledger, colored | 2.00 | " | — |
| New Manila Envelope Cuttings, one cut | 2.87½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| Extra Manilas | 1.95 | " | — |
| Mixed Kraft, Env. & Bag Cuttings | 2.75 | " | — |
| Kraft Envelope Cuttings | 3.25 | " | — |
| Triple Sorted, No. 1 Brown Soft Kraft | 2.50 | " | — |
| New 100% Kraft Corrugated Cuttings | 2.25 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| New Jute Corrugated Cuttings | .90 | " | — |
| Old 100% Kraft Corrugated Containers | 1.75 | " | — |
| Old Corrugated Containers | 1.40 | " | — |
| Box Board Cuttings | .72½ | " | — |
| White Blank News | 1.65 | " | — |
| Overissue News | 1.10 | " | — |
| No. 1 News | 1.00 | " | — |
| No. 1 Mixed Paper | .95 | " | — |
| Old Corrugated Containers | .82½ | " | — |
| Mill Wrappers | 1.10 | " | — |

### Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

| | | | |
|---|---|---|---|
| Coarse Polished— | | | |
| India | .21 | @ | — |
| White Hemp | .21 | " | — |
| Fine Polished— | | | |
| Fine India | .26 | " | — |
| Unpolished— | | | |
| Box | .17½ | " | — |
| Paper Makers | .17 | " | — |
| Tube Rope | .19 | " | — |
| Wall Paper | .20½ | " | — |
| Wrapping | .23 | " | — |
| Soft Fiber Rope | .19 | " | — |
| Cotton | .25 | " | — |

(Hard Fiber)

| | | | |
|---|---|---|---|
| Medium Java | .18 | " | — |
| Mex. Sisal | .16 | " | — |
| Manila | — | " | — |

## PHILADELPHIA

### Domestic Rags (New)

(Price to Mill)

| | |
|---|---|
| Shirt Cuttings— | |
| New White No. 1 | .07¼ |
| New White No. 2 | .05¾ |
| Light Silesias | .05¾ |
| Black Silesias, soft | .03¾ |
| New Unbleached | .07½ |
| Washable Prints | .04¾ |
| Washable No. 1 | .03 |
| Blue Overall | .05½ |
| Cottons—According to grades— | |
| Washable Shredding | .01¾ |
| Fancy Percales | .04¾ |
| New Black Soft | .03¼ |
| Khaki Cuttings— | |
| Unbleachable Cotton Cuttings | .03½ |
| Bleachable Cotton Cuttings | .04¾ |
| Men's Corduroy | .03½ |
| Ladies' Corduroy | .03 |
| Cottonades | .03¼ |

### Domestic Rags (Old)

| | | | |
|---|---|---|---|
| White No. 1—Repacked | 3.80 | @ | — |
| Miscellaneous No. 1 | 3.20 | " | — |
| Miscellaneous No. 2 | 2.65 | " | — |
| White No. 2—Repacked | 2.90 | " | — |
| Thirds and Blues— | | | |
| Miscellaneous | 1.80 | " | — |
| Repacked | 2.20 | " | — |
| Black Stockings— | | | |
| (Export) | Nominal | | |
| Roofing Stock— | | | |
| Foreign No. 1 | Nominal | | |
| Domestic No. 1 | 1.55 | " | — |
| Domestic No. 2 | 1.45 | " | — |
| Roofing Bagging | 1.35 | " | — |
| Old Manila Rope | 5.75 | " | — |

### Bagging

(F. o. b. Phila.)

| | | | |
|---|---|---|---|
| Gunny No. 1— | | | |
| Foreign | Nominal | | |
| Domestic | 3.00 | @ | 3.50 |
| No. 1 Clean bright— | | | |
| Sisal Strings | .04 | " | — |
| No. 2 Clean bright— | | | |
| Sisal Strings | .03 | " | — |
| Sisal Jute | .02½ | " | .02¾ |
| Scrap— | | | |
| No. 1 | 3.25 | " | 3.50 |
| No. 2 | 1.75 | " | 1.80 |
| Wool Tares, heavy | 4.00 | " | 4.25 |
| No. 1 New Light Burlap | 3.00 | " | 4.00 |
| New Burlap Cuttings | 3.75 | " | 4.00 |

### Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

| | | | |
|---|---|---|---|
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | " | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| Soft White Shavings, one cut | 2.50 | " | — |
| White Blank News | 1.65 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 Hard White Shavings, ruled | 2.50 | " | — |
| No. 1 Mixed Paper | .95 | " | — |
| Overissue Magazines | 1.67½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| No. 1 Mixed Paper | .95 | " | — |
| Box Board Cuttings | .72½ | " | — |
| Kraft Corrugated Cuttings | 2.25 | " | — |
| Old Corrugated Containers | 1.40 | " | — |
| No. 1 News | 1.00 | " | — |

## BOSTON

### Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

| | | | |
|---|---|---|---|
| No. 1 Hard White Shavings, unruled | 2.87½ | @ | — |
| No. 1 Hard White Shavings, ruled | 2.50 | " | — |
| Soft White Shavings, Misc. | 2.15 | " | — |
| No. 1 Fly Leaf Shavings | 1.67½ | " | — |
| No. 2 Fly Leaf Shavings | 1.12½ | " | — |
| No. 1 Groundwood Fly Leaf Shavings | 1.25 | " | — |
| No. 2 Groundwood Fly Leaf Shavings | .90 | " | — |
| Mixed Colored Shavings | .75 | " | — |
| New Manila Envelope Cuts, one cut | 2.87½ | " | — |
| Hard White Envelope Cuts, one cut | 3.37½ | " | — |
| Triple Sorted No. 1 Brown Soft Kraft | 2.50 | " | — |
| Mixed Kraft Env. & Bag Cuttings | 2.75 | " | — |
| Kraft Envelope Cuttings | 3.25 | " | — |
| No. 1 Heavy Books & Magazines | 1.92½ | " | — |
| New Manila Envelope Cuts, one cut | 2.87½ | " | — |
| New Manila Envelope Cuttings | 2.65 | " | — |
| White and Colored Tabulating Cards | 2.25 | " | — |
| Ground Wood Tabulating Cards | 1.35 | " | — |
| White Blank News | 1.65 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| No. 1 Mixed Paper | .95 | " | — |
| Overissue News | 1.10 | " | — |
| Box Board Cuttings | .72½ | " | — |
| New Corrugated Cuttings, Kraft | 2.25 | " | — |
| Old 100% Kraft Corrugated Containers | 1.75 | " | — |
| Old Corrugated Containers | 1.40 | " | — |
| Jute Corrugated Cuttings | 1.07½ | " | — |

### Bagging

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Gunny Bagging— | | | |
| Foreign | (nominal) | | |
| Domestic | 2.75 | @ | 2.90 |
| Sisal Rope No. 1 | *4.75 | " | — |
| Sisal Rope No. 2 | * — | " | 4.00 |
| Mixed Rope | — | " | 1.55 |
| Transmission Rope— | | | |
| Foreign | (nominal) | | |
| Domestic | 2.75 | " | 3.00 |
| Manila Rope— | | | |
| Foreign | (nominal) | | |
| Domestic | 5.75 | " | — |
| Soft Jute Rope | 4.50 | " | 5.00 |
| Jute Carpet Threads | 3.00 | " | 3.50 |
| Bleachery Burlap | 8.50 | " | 9.00 |
| Scrap Burlap— | | | |
| Foreign | (nominal) | | |
| Domestic | 3.00 | " | 3.25 |
| South American | — | " | 3.25 |
| Wool Tares— | | | |
| Foreign | (nominal) | | |
| Domestic | 4.25 | " | — |
| Aust. Wool Pouches | — | " | 3.65 |
| New Zealand Wool Pouches | — | " | 3.50 |
| New Burlap Cuttings | 4.75 | " | 5.00 |
| Heavy Baling Bagging | 4.00 | " | 4.25 |
| Paper Mill Bagging | 2.50 | " | 3.00 |
| No. 2 Roofing Bagging | 1.35 | " | — |

* OPA Maximum Prices.

### Domestic Rags (New)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| Shirt Cuttings— | | | |
| New Light Prints | .04½ | @ | .04¾ |
| Fancy Percales | .04¾ | " | .05 |
| New White No. 1 | .06¾ | " | .07 |
| New Light Flannelettes | .05½ | " | .06 |
| Canton Flannels, Bleached | .06 | " | .06¾ |
| Underwear Cutters, Bleached | .06¾ | " | .06¾ |
| Underwear Cutters, Unbleached | .05¾ | " | .06 |
| Silesias No. 1 | .06 | " | .06¾ |
| New Black Silesias | .03 | " | .03¾ |
| Red Cotton Cuttings | .03½ | " | .04 |
| Soft Unbleached | .06½ | " | .06¾ |
| Blue Cheviots | .05½ | " | .06 |
| Fancy | .02¾ | " | — |
| Washable | .02¾ | " | — |
| Khaki Cuttings | .02¾ | " | .03 |
| O. D. Khaki | .03½ | " | .03¾ |
| Corduroy | .03¾ | " | .03½ |
| New Canvas | .06¾ | " | .06½ |
| B. V. D. Cuttings | .06¾ | " | .06½ |

### Domestic Rags (Old)

(F. o. b. Boston)

| | | | |
|---|---|---|---|
| White No. 1— | | | |
| Repacked | 3.80 | @ | —* |
| Miscellaneous | 3.20 | " | —* |
| White No. 2— | | | |
| Miscellaneous | 2.65 | " | —* |
| Twos and Blues, Repacked | 2.20 | " | —* |
| Old Blue Overalls | 2.25 | " | 2.50 |
| Thirds and Blues, | | | |
| Repacked | 2.20 | " | —* |
| Miscellaneous | 1.80 | " | —* |
| Black Stockings | 3.50 | " | 4.00 |
| Roofing Stock— | | | |
| No. 1 | 1.55 | " | —* |
| No. 2 | 1.45 | " | —* |
| No. 3 | 1.35 | " | —* |
| No. 4 | 1.35 | " | —* |
| No. 5, Quality A | 1.35 | " | —* |
| Quality B | 1.20 | " | —* |
| Quality C | .95 | " | —* |
| Old Manila Rope | 5.75 | " | —* |

* OPA Maximum Prices.

### Foreign Rags

(F. o. b. Boston)

| | |
|---|---|
| Canvas | (nominal) |
| Dark Cottons | (nominal) |
| Dutch Blues | (nominal) |
| New Checks and Blues | (nominal) |
| Old Fustians | (nominal) |
| Old Linsey Garments | (nominal) |
| New Silesias | (nominal) |

## CHICAGO

### Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

| | | | |
|---|---|---|---|
| Shavings— | | | |
| No. 1 Hard White Envelope Cuts, one cut | 3.37½ | @ | — |
| No. 1 Hard White Shavings, unruled | 2.87½ | " | — |
| No. 1 Soft White Shavings | 2.50 | " | — |
| No. 1 White Ledger | 2.30 | " | — |
| No. 1 Heavy Books & Magazines | 1.92½ | " | — |
| White Blank News | 1.65 | " | — |
| Mixed Kraft Env. & Bag Cuttings | 2.75 | " | — |
| No. 1 Assorted Old Kraft | 1.75 | " | — |
| Overissue News | 1.10 | " | — |
| No. 1 News | 1.00 | " | — |
| No. 1 Mixed Paper | .95 | " | — |
| No. 1 Roofing Rags | 1.55 | " | — |
| No. 1 Roofing Bags | 1.45 | " | — |

# West Virginia Pulp and Paper Company

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Chicago

Public Ledger Building
Philadelphia, Pa.

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San Francisco, Cal.

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Plant manager chemical processing plant, very attractive salary
Superintendent, also tour boss roofing felts
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Superintendent for printing, book and specialty papers
Office accountant
Master Mechanic
Superintendent groundwood pulp and groundwood specialty paper mill
Plant engineer $8,000—6,500 year
Chemists and laboratory assistants
Night superintendent, machine and beak tenders, 3rd and 4th hands
Draftsmen, designers and mill engineers
Salesmen for paper and paper mill equipment
We have many other openings paying splendid salaries

We invite correspondence (strictly confidential) with employers seeking personnel and men seeking new positions. S-6

**Wanted**
**ASSISTANT TO CHIEF ENGINEER**

To take complete charge of our Power Plant supervising the operation and maintenance of high pressure boilers, turbines, and auxiliary equipment. Young man with both technical and practical background preferred. Excellent opportunity for growth in responsibilities. Give complete personal and business history in letter of application.

**FORT HOWARD PAPER COMPANY**
Green Bay, Wisconsin O-4

A small converting plant near New York has an excellent opportunity for a MAN 30-45 with exceptional mechanical ability.

Must be industrious, neat and able to handle younger people well and more or less of a mechanical genius.

There is an excellent future, ample starting salary and pleasant suburban working conditions.

Give complete detailed information in your reply. Box 45-848 care Paper Trade Journal. S-20

**Development Chemist for Converting Plant located in the New York Metropolitan Area.**

**List all information in first letter and interview will be arranged promptly. Address Box 45-488 c/o Paper Trade Journal. S-6**

**MASTER MECHANIC**

to take full charge of maintenance in Asphalt Roofing Plant. Western New York location. Excellent salary for the right man. Give full particulars in first letter. All replies in strictest confidence. Address Box 45-533, Paper Trade Journal. TF

WANTED — DRAFTSMAN - ENGINEER for large board mill in mid-west. Permanent position with excellent post war future. In replying, give age, education and experience. Address Box 45-551 care Paper Trade Journal. S-13

## CLASSIFIED ADVERTISING

**HELP WANTED** —5c a word. Double rate for heavy face type. Minimum charge $1.25.

**SITUATIONS WANTED** —5c a word, double rate for heavy face type. Minimum charge $1.25. If repeated ½ rate will be charged for each consecutive repetition.

**FOR SALE** —5c a word. Double rate for heavy face type. Minimum charge $1.25.

**WANTED** —5c a word. Double rate for heavy face type. Minimum charge $1.25.

**OPPORTUNITIES** —5c a word. Double rate for heavy face type. Minimum charge $1.25.

Classified advertising space may also be purchased at $3.00 per single column inch.

All classified advertisements are payable in advance.

If box number is used—35 cents additional.

**Address Replies**

to advertisements appearing under Box Numbers in care of

PAPER TRADE JOURNAL
15 West 47th Street
New York 19, N. Y.

**SALARIED POSITIONS**

$2,500-$25,000. Reconversion is creating lifetime opportunities now. This thoroughly organized confidential service of 35 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

**R. W. BIXBY, INC.**
**117 Delward Bldg., Buffalo 2, N. Y. TF**

WANTED—2 Experienced Paper Mill Millwrights for Mill in Western U. S. Address Box 45-502 care Paper Trade Journal. S-13

WANTED—CHIEF CHEMIST for pulp and paper mill located on Pacific Coast. Apply in own handwriting giving references, experience and other pertinent information. Address Box 45-243 care Paper Trade Journal. TF

MACHINE TENDER for cylinder machine operations. Must be experienced at this particular kind of machine operations. Prefer high school graduate or equivalent. Address Box 45-293 care Paper Trade Journal. TF

WANTED — ENGINEERS — Capable of handling general engineering work in established consulting engineers office specializing in pulp and paper mills. Address Box 45-469 care Paper Trade Journal. TF

TOUR BOSSES wanted for Roofing Felt Mills located in New Orleans and Metropolitan New York Area. Send complete resume giving experience, etc. to Box 45-491 care Paper Trade Journal. S-6

WANTED—Experienced adjuster and machine tender for Lockport and National Paper Bag Machines, for flat and square bags. Plant in western New York. Address Box 45-498 care Paper Trade Journal. S-20

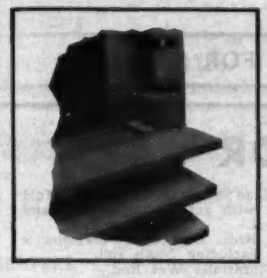
SALES MANAGER—Well established house in Philadelphia, Pa. wants man with paper experience and car to sell paper specialties to restaurants, hotels, institutions, luncheonettes, etc. Address Box 45-503 care Paper Trade Journal. S-13

WANTED—Manufacturing Agents for distribution of chemical product to pulp and paper mills. Several territories available in United States and Canada. Write fully on present lines and territory. Address Box 45-517 care Paper Trade Journal. S-20

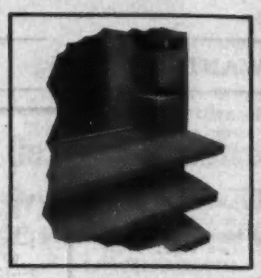
WANTED—Sales and Technical Service Representatives for New England and Middle Atlantic States to serve pulp and paper mills. Mill experience and bacteriological or chemical training desirable. Address Box 45-518 care Paper Trade Journal. S-20

SUPERINTENDENT — Squares, Flats, Sacks, S. O. Permanent position with progressive company. Write full details. Address Box 45-522 care Paper Trade Journal. S-6

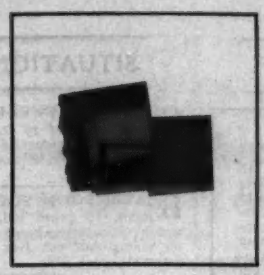
WANTED—Two Paper Mill Engineers and two draftsmen experienced modern paper mill practise. Also two Mechanical Draftsmen. Permanent work for good men. THE CELOTEX CORPORATION, 205 W. Monroe Street, Chicago 3, Illinois. S-6



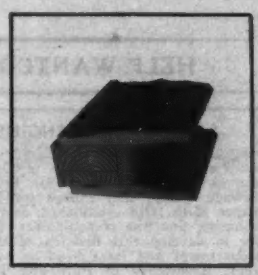
Locking key shown partly in place. Note double taper of key . . . how it locks into tapered slot in roll head . . . how it locks into rib at back of fly bar.



The locking key shown fully in place. Note the holes in the head for driving out keys. This job can be done simply with only a sledge and drift. One bar at a time can be removed.

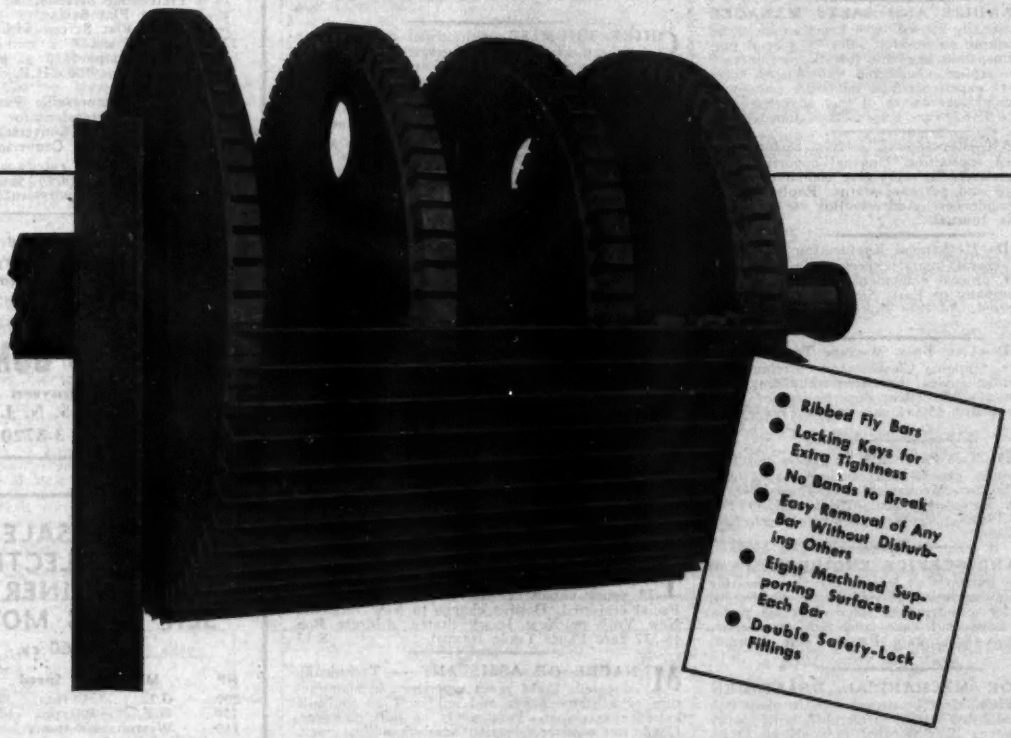


Notched end of fly bar assures tight fit against head, preventing side slipping. Locking key and rib on back of fly bar show why fly bar is held in position so tightly.



The Dilts double safety-lock filling. One wedge, swelling against the other, and fly bar rib gripping on back, gives enormous rigidity. Acts as barrier to stock.

# EXTRA RUGGED BEATER ROLLS


Ribbed Fly Bars
Locking Keys for Extra Tightness
No Bands to Break
Easy Removal of Any Bar Without Disturbing Others
Eight Machined Supporting Surfaces for Each Bar
Double Safety-Lock Fillings

Dilts bandless beater rolls are extra rugged, fully able to withstand the punishment rolls operating on raw rags and mixed papers have to take.

Also important is the ease of removal of the Dilts ribbed fly bars—one at a time as necessary—although previously locked doubly tight by Dilts exclusive wedge device.

Dilts fly bars furnished in special alloy, heat treated steel, stainless steel or bronze. Single or double bevel bars, if required but special Dilts ribbed bars recommended.

***Address inquiries to the Dilts Division or to Alexander Fleck, Ltd.***

**THE BLACK-CLAWSON CO., Hamilton, Ohio**

Dilts

**Divisions: Shartle Bros. Machine Co., Middletown, Ohio**
**Dilts Machine Works, Fulton, N. Y.**
**Associate: Alexander Fleck, Ltd., Ottawa, Canada**

## HELP WANTED

**SALES-MINDED ENGINEER**

who can qualify by reciprocity or test, or who is registered in State of Oregon, to act as Sales Technician for firm selling Sewage Pumps and Pumps for Pulp and Paper Mills. Old established company distributing fine line of equipment. Opportunity to develop this division of the Pump Department and later head as sales manager. Knowledge of Pulp and Paper Industry desirable but not essential. Give age, education, experience, engineering record. Enclose picture.

**R. M. WADE & CO**
**106 S.E. Hawthorne Blvd.**
**Portland 14, Oregon** S-6

**MIDWESTERN** paper mill undertaking large post war development program, requires assistant paper mill engineer. Inquiries are invited. Address Box 45-532 care Paper Trade Journal. S-13

**MERCHANDISE AND SALES MANAGER** for nationally known paper bag manufacturing company seeking to develop sales of special purpose and transparent bags and flexible containers—opportunity—replies considered in strictest confidence—state experience and minimum compensation. Our employees aware of this advertisement. Address Box 45-529 care Paper Trade Journal TF

**SALESMAN**—Experienced folding cartons and boxboard specialties. Unusual opportunity in protected territory. In reply give complete resume of experience and personal status. Reply held in strictest confidences. Address Box 45-501 care Paper Trade Journal. A-30

**WANTED**—Mechanical Engineering Draftsmen with several years experience in chemical plant layout, process equipment design, piping for chemical company in East. State age, experience, salary expected. Address Box 45-554 care Paper Trade Journal. S-27

**WANTED**—Tour Boss, Machine Tender, Back Tender, Shipping Clerk for one machine mill making folding grades. Extensive rebuilding program under way. Excellent opportunity for right men. Address Box 45-541 care Paper Trade Journal. O-25

**WANTED**—Two Paper Mill Engineers and Two Draftsmen experienced modern paper mill practice. Also two Mechanical Draftsmen. Permanent work for good men. THE CELOTEX CORPORATION, 205 West Monroe Street, Chicago 6, Illinois. S-13

**SALES AND SERVICE ENGINEER** to call on trade regularly at least every three months to check on operation of pulp and paper mill equipment for maintenance, sales of repair parts, etc. Must have had shop and mill experience. Address Box 45-543 care Paper Trade Journal. S-13

**CIVIL OR MECHANICAL DRAFTSMEN WANTED.** Must be experienced in plant layout and building design, preferably with paper mill experience. Plant located in southern Ohio. Address Box 45-547 care Paper Trade Journal. S-6

**A CONVERTING PLANT** with ideas for mechanical improvements, needs some special machine builder available now or near future. Address Box 45-549 care Paper Trade Journal. S-20

**PAPER MILL SUPERINTENDENT** wanted for three machine mill located in eastern Pennsylvania manufacturing general printing, book and specialty papers. Address Box 45-550 care Paper Trade Journal. S-6

## SITUATIONS WANTED

**PAPER SALESMAN at present covering the jobbing trade in Pennsylvania, New Jersey, Delaware, Maryland, Virginia and North Carolina as a mill representative desires to operate over the same territory as a representative for three of four non-conflicting lines. Address Box 45-435 care Paper Trade Journal.** O-25

## SITUATIONS WANTED

**CHEMICAL EXECUTIVE AND CONSULTANT** wishes to contact parties interested in manufacturing cigarette and other tissue papers. Address Box 45-493 care Paper Trade Journal. S-6

**BEATERROOM SUPERINTENDENT** or foreman, 55 years old. 35 years theoretical and practical experience on most kinds of paper. Good on color. Address Box 45-484 care Paper Trade Journal. S-20

**CHIEF CHEMIST**—Assistant, Manager. Research and development for pulp, cigarette, carbon and fine papers. 10 years experience, supervision and production. Available. Address Box 45-494 care Paper Trade Journal. S-6

**WOOD PULP SALESMAN** well acquainted with officials and purchasing agents in Middle West, would appreciate interview. Address Box 45-496 care Paper Trade Journal. S-13

**SUPERINTENDENT** desires change. Experienced on tissues, kraft papers, news, etc. Address Box 45-495 care Paper Trade Journal. S-6

**CHIEF CHEMIST** with wide experience in southern kraft pulp and paper mills, desires a position as technical director or assistant manager with a progressive firm. Address Box 45-504 care Paper Trade Journal. S-6

**SUPERINTENDENT**—Twenty-five years experience making high grade kraft specialties, envelope, cement sack and imprinted papers, both Fourdrinier and Yankee machines. Address Box 45-510 care Paper Trade Journal. S-13

**TECHNICAL GRADUATE** desires position as Plant Engineer. 17 years experience in mills with Sulphite, Bleach, Deinking Plants and facial, toilet, book, bond, Kraft specialties and jute board grades. Address Box 45-513 care Paper Trade Journal. S-6

**CHEMIST**—Ph. D. 16 years fundamental and applied research experience in sulfite and alkaline pulping, bleaching, dissolving pulps, papermaking, byproduct development. Desires supervisory position as research director, technical director or chief chemist in progressive company. Now employed. Address Box 45-534 care Paper Trade Journal. S-6

**TECHNICAL DIRECTOR** experienced 13 years in practical scientific supervision of paper making and coating. Desires change to progressive organization. Capable of managing small mill or as assistant manager of large mill. Now employed. Address Box 45-536 care Paper Trade Journal. S-13

**TISSUE MACHINE TENDER**—50 years old, 32 years experience on all grades of tissue. Facial preferred. Desires change to New England, New York or New Jersey States. Address Box 45-537 care Paper Trade Journal. S-13

**MANAGER OR ASSISTANT** — Technically educated. Eight years experience in manufacture of asbestos paper and millboard on multiple cylinder machines. Four years as mill manager. Good on cost, production, and handling men. Would consider superintendent. Address Box 45-545 care Paper Trade Journal. S-20

## FOR SALE

**FOR SALE**

**36" Diameter Dryers 85" and 86" Face — 3 Deck — Complete with Stands, Gears and Bearings.**

**EMPIRE BOX CORPORATION**
**Garfield, New Jersey**
TF

**FOR SALE**—14 x 22 John Thomson "Half Super Royal" style 5-B Job Printing Press; 14 x 22 John Thomson Die Cutting Press; American heavy duty Cross Cut Saw. Address Box 45-526 care Paper Trade Journal. S-6

## FOR SALE

# FOR SALE

1—Saveall 36" x 136" Cylinder Mold equipped with anti-friction bearing and couch roll.
1—Shartle Bros. Decker 36" diameter x 60" face including couch roll.
1—120" Fourdrinier Wet End.
1—#2 Miami Jordan.
1—#9 Emerson Jordan for direct connection to a motor, requires use of 400 H.P. motor.
1—Shartle Brothers Duplex 10 x 20 Stock Pump.
1—Moore & White 10 x 12 Triplex Stock Pump.
2—2000 lb. Holyoke Beaters.
1—1000 lb. Dayton Beater.
1—Jones pulper — direct connected to 60 H.P. motor.
2—12 Plate Packer type flat screens with steel vats.
2—8 Plate Flat Screens.
1—12 Plate Flat Screen.
1—18 Plate Flat Screen with scraper.
13—Driers 60" x 154".
1—Buffalo Pump—5500 g. p. m., direct connected to 100 H.P. Motor (50' head).
1—#4 Roots-Connersville Vacuum Pump.
2—65" Cameron tensions for winders.
2—63" Dietz Toilet Converters.
1—81" Dietz Toilet Converter.

*Various sizes of Centrifugal Pumps. Write us regarding your particular requirements.*

***We are always in the market to purchase your surplus or idle machinery. What have you to offer?***

**J. J. ROSS COMPANY**
**250 Frelinghuysen Ave.**
**Newark 5, N. J.**
**Bigelow 3-3720** S-6

**FOR SALE**
**REBUILT ELECTRICAL MACHINERY**
**SLIP RING MOTORS**
**3 ph. 60 cy.**

| HP | Make | Speed | Voltage |
|---|---|---|---|
| 200 | G.E. | 240 rpm | 2200/440/220 |
| 150 | G.E. | 600 rpm | 2200/440/220 |
| 150 | Westgh. | 600 rpm. | 440/220 |

Large stock of AC & DC Motors.

AC and DC Generating Equipment.
2—300 KW G.E. R. Converters 250 V. DC with transformers 2300 or 4000 Volt.
60 KVA Allis Chal. Turbo 240 V. 3 ph. 60 cy.
50 KW Westgh. Turbo 125 Volt D.C.
50 KW Westgh. Engine unit 125 Volt D.C.

***Dealing in Rebuilt Electrical Machinery, exclusively, for a quarter of a century.***

**MOORHEAD-REITMEYER CO., INC.**
**30th & Brereton Sts. Pittsburgh, Pa.**
S-6

**FOR SALE**
**New and guaranteed used steel pipe, boiler tubing, valves, fittings, wood and steel tanks, steel buildings**
**JOS. GREENSPON'S SON PIPE CORP.**
**NATIONAL STOCK YARDS, Illinois.**
S-6

FOR SALE | FOR SALE | FOR SALE

# Ross Paper Machinery Co., 17 Porter Ave., Newark 8, New Jersey, Waverly 3-5675

## 146" Pulp Drying Machine—200 ton per day drying capacity.

***Prints and additional information on request.***

**BEATERS**
1—2500 lb. Downingtown Iron Tub
1—750 lb. Downingtown Iron Tub
2—1000 lb. Horne Iron Tub
1—1200 lb. Holyoke Wood Tub

**CALENDER STACKS**
1—9 Roll Lobdell 124" Warren Doctors
1—10 Roll Farrell 104" Warren Doctors
1—11 Roll Pusey & Jones 104" Warren Doctors

**CONVERTING EQUIPMENT**
1—Bliss Double Head Stitcher
1—Bliss Single Head Stitcher
1—Bliss Box Assembling Machine
1—66" Dietz Towel Winder
4—Waterville Grinders
1—42" Parry Liner & Combiner
1—36" Waldron Reeling Machine
1—39" Dampening Machine
1—36" Brush Coating Machine
1—Copper Mixing Tank with agitator—40 gal.
1—Cast Iron Kettle 20" x 24" 2 outlets

**DRYERS**
5—48" diam.—102" face—2 deck frames.
40—36" diam. 86" face 3 deck frames
18—36" diam. 82" face 2 deck frames
40—28" diam. 96" face 2 deck frames

**FESTOON DRYERS**
100" Proctor & Schwartz
60" Proctor & Schwartz

**FLAT SCREENS**
1—Moore & White 8 Plate
1—Moore & White 10 Plate
2—Sandy Hill Packer 8 Plate with Scrapers.
1—Sandy Hill Packer 10 Plate
1—Trimbey Pulp Screen 30 ton cap.

**JORDANS**
1—E. D. Jones Standard motor drive
1—Dillon No. 2 Motor drive
1—Appleton No. 2 motor drive
1—Noble & Wood Monarch Belt Drive
1—Emerson No. 2 Belt Drive

**KNIFE GRINDER**
1—72" Seybold automatic used one year

**MISCELLANEOUS**
1—Warren Broke Target with pump
2—Yankee Dryer doctor oscillators (Beloit)
2—Nugent Oil Filters (new)
2—Beloit Fourdrinier Shakes
1—Oster Pipe Threading Machine 2" to 6" direct conn. to motor

**MOTORS**
1—30 h.p. 600 R.P.M. 2300 V. 3 Ph. 60 cy.
1—40 H.P. 3600 R.P.M. 2300 V. 3 Ph. 60 cy.

**PLATERS**
2—Holyoke 2 Roll 18" dia. 36" face

**PULP EQUIPMENT**
2—Pusey & Jones vertical Digesters (welded) 7' dia., 24' high 125 lb. pressure
8—Horizontal Digesters 15' diam. 47' face 150 lb. pressure
3—Improved No. 2 Knotters
1—Nichols-Herreshoff Lime Kiln
1—Williams No. 30 Bark Hog
1—Sumner Disc Barker 72" dia.

**PULPERS**
1—Sturtevant Bale Pulper with conveyor & motors used three years.
1—Voith Pulper No. 1-20 tons cap.

**PUMPS**
1—Pusey & Jones 5" x 8" Stock.
1—DeLaval 6" x 6"
1—Oliziti Acid 3" Suction.
1—Frederick 600 g.p.m. 50' head (stock)
1—Midwest 6" stock pump

**REELS**
2—Pusey & Jones 104" face 18" dia. bowls
1—Pusey & Jones 115" face 18" dia. bowls
1—2-bowl 100" face 20" dia. bowls

**RIGHT ANGLE WORM GEAR DRIVES**
1—Cleveland 2 H. P.—10 to 1 ratio.
1—Philadelphia 15 H. P.—60 to 1 ratio.
1—Oliver 5 H. P.—51 to 1 ratio.
1—Grant 2 H. P.—34¼ to 1 ratio.
1—Cleveland 2.3 H. P.—40 to 1 ratio.
1—Cleveland 1.2 H. P.—60 to 1 ratio.
1—Grant 2 H. P.—7 to 1 ratio.
1—Philadelphia 2 H. P.—600 to 1 ratio.
1—Philadelphia 15 H. P.—60 to 1 ratio.

**SATURATOR**
1—Guyton-Cumfer 5 gates

**SAVEALL**
1—A. D. Wood cylinder 48" dia. 60" face
1—No. 4 Bird with motor and speed reducer 16" diam. rubber couch.

**SLITTERS & WINDERS**
1—104" Warren two drum.
1—72" Pusey & Jones two drum.

**STUFF PUMPS**
1—12" x 12" Goulds triplex
6—10" x 20" Shartle triplex
1—8" x 18" Shartle triplex
1—12" x 16" Shartle triplex
1—8" x 10" Shartle triplex
1—7" x 16" Shartle triplex
1—8" x 18" Shartle duplex

**SUCTION FELT ROLLS**
1—Downingtown 12" diam. 106" drilled face
1—Downingtown 10" diam. 106" drilled face

**TRIMMER**
1—64" Dayton Seybold.

**UNWINDERS**
1—52" Johnstone Uniform Tension Unwinder with auto. hydraulic brakes. Used 6 months.
1—42" John Waldron Unwinder. Used 1 year.

**VACUUM PUMPS**
1—14" x 20" Connersville
1—12" x 18" Connersville

**WASHERS (Beaters)**
1—54" face—45" diam. with rigging
1—52" face—52" diam. with rigging

**WET MACHINE**
1—84" Improved three roll Hydraulic Enclosed drive (used one year)

**CASH PURCHASER OF ALL TYPES OF PAPER, PULP AND CONVERTING EQUIPMENT**
**WANTED—THREE CYLINDER AND TWO FOURDRINIER MACHINES FOR EXPORT—ANY WIDTH**

---

**REVAMPING AND BUILDING MILL AND CAN OFFER FOR SALE**

One large Breaker Beater complete
One small Beater Complete
1—90" Diameter X 90" Face cylinder mold
1—8x8 Shartle Duplex plunger stock pump
1—New pair cast steel double suspension spring type beater bearings for 8" diameter journal—Noble & Wood beater roll. Never used
1—Used old style lighter beam for 8" diameter journal Noble & Wood beater
1—New reinforced design lighter beam for 8" diameter journal—Noble & Wood beater roll. Pattern No. 663. Never used.
3—200 KVA —33000-2300/4000 volts transformers
1—250 H.P. slip ring motors & controls—450 R.P.M.—3 bearing base and pulley
60—62" Face steel dryer felt rolls—1—7/16" journals
1—26" Face cast iron taper pulley—2 15/16" bore taper 31"x29½"
4—30" diameter x 83" face dryers
1—8" to 10" Cox & Sons Pipe threading machine
1—48"x48" Noble & Wood beater roll with Sirilnz installed
1—42" Noble & Wood impeller for circulation stock in beater.

A visit to the mill would prove profitable as we have many items for sale to numerous to mention. See our superintendent Mr. O. P. Fussell at our plant in Wallkomsac, New York.

**WALLOOMSAC PAPER MILLS, INC.**
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, New York TF

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**FOR SALE**

1—Standard Horne Jordan with new shell and plug fillings.
1—300 lb. Valley Iron Works high speed Beater of the Holland type. A-1 condition.
1—Knowlton Spiral Core Machine complete with 36" Lanston Recutter. Immediate delivery.
1—7-roll 48" wide Holyoke Super Calender Stack, complete with 50 H.P. G. E. a.c. 3 phase 60 cycle, 220 volt motor equipment. Machine in perfect condition.
1—84" Left Hand 4 Knife Carthage Chipper with two new sets of knives.
1—32 Lannoye Pulper complete with 40 H/P A.C. motor equipment. A-1 condition.
1—110" Double-Drum Waldron Into type shear cut hydraulic Slitter and Rewinder.
1—Type FC International Folding Paper Box Machine Co.'s Folding and Gluing Machine. Range of sizes on folded cartons 2¾" to 10" when folded flat and 3" to 30" long.
1—30" Standard Waldron Embossing Machine with Lovell pattern.
2—58" up-to-date Beck Rotary Sheet Cutters complete with automatic Beck Layboys.
1—18" x 37" Standard Sheridan Die Press with motor. Rebuilt and guaranteed.

**GIBBS-BROWER COMPANY, INC.**
21 East 40th St., New York 16, N. Y.
TF

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**FOR SALE**
**1—Vacuum Filter**
Address Box No. 45-514 care Paper Trade Journal. S-6

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**PAPER MILL & PAPER CONVERTING EQUIPMENT FOR SALE**

34" Inman Slitter.
42" Finishing Cloth Slitter.
36" Sheridan Automatic Power Paper Cutter.
44" Seybold Holyoke Aut. mill type Power Cutter.
48" White Automatic Power Cutter.
60" Finley Sheeter.
110" Hamblet heavy duty Sheeter.
68" Rice Barton & Fales Slitter & Rewinder, for use on dry and of paper machines.
120" Moore & White 4-drum Rewinder.
New 62" Two-Roll Back Stand, handling rolls up to 30" diameter.
4 Waldron 36" Paper Reelers
Baling Machines, both hand and power.

**THOMAS W. HALL COMPANY, Inc.**
120 West 42nd St., New York 18, N. Y.
TF

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**FOR SALE**

Ten dryers 48" dia. x 82" to 86" face, rebuilt, with frames, gears, bearings and new Johnson joints.
86" Rice Barton Calender, Vickary doctors and oil pressure system.

**SHEET CUTTERS:**
1—58" Moore & White with layboy and backstand.
2—90" Hamblet with Moore & White layboy and backstand.
1—72" Finley cutter, with cast iron knife bar.

**FRANK H. DAVIS COMPANY**
175 Richdale Ave., Cambridge Mass. 8-13

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FOR SALE—Complete Pulp and Paper Mill. Earning fine profit. Excellent condition. Information given to principals only. Address Box 45-489 care Paper Trade Journal. S-6

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore, 30, Md. TF

## FOR SALE

4—Duplex 4 x 10 stuff pumps arranged for motor drive. Operated 3 years.

Box No. 45-552 care Paper Trade Journal. S-27

**FOR SALE**

**One 99" nine roll calender stack.**

**Address Box No. 45-516 care Paper Trade Journal. S-6**

**FOR SALE**

1—DeLaval Steam Turbine—60 to 75 H.P., 125 to 250 lbs. steam pressure, 5 to 55 lb. back pressure, ideal where processing steam is required.
1—Deane Triplex Pump—Size 5½ x 8 with 15 H.P. motor.

**KEATING EQUIPMENT COMPANY**
30 Church Street—New York 7, N. Y.
Telephone REctor 2-5353 S-6

**FOR SALE**

**GASOLINE MOTOR HYDRAULIC LIFT TRUCK**

**108" Lift — 3000 Lbs. Capacity**

**THOMAS PAPER STOCK COMPANY**
860 West Evergreen Avenue, Chicago 22, Illinois TF

**FOR SALE**

1—Yankee Fourdrinier machine with 10' x 98" dryer
1—144" Pulp Drying Machine
1—120" fourdrinier machine

**SHARTLE BROS. MACHINE CO.**
Middletown, Ohio
S-28

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE—Knowlton 16" Convolute Can Winder with Labeling attachment—Langston Paper Roll Slitter Drum Rewind, Paper Core and Tube Recutter. THEO ADAMS, 111 W. Washington Street, Chicago 2, Ill. S-6

FOR SALE CHEAP—One 400 Horsepower motor, 60 cycle. One Wicks Centrifugal Pump, 2 Barkers. Address Box 45-544 care Paper Trade Journal. S-6

FOR SALE—40" Kidder model S. L. Rotary Slitter, drum rewind, with large quantity of knives. Address Box 45-535 care Paper Trade Journal. S-13

FOR SALE—50" Sheridan New Model Cutter in good working order. Address Box 45-552 care Paper Trade Journal. S-6

FOR SALE—1—34" late type Waldron Embosser with inking attachment. Practically new. Address Box 45-556 care Paper Trade Journal. S-6

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**WANTED TO PURCHASE A GOING MILL FOR CASH SEND FULL PARTICULARS CONFIDENTIAL**

Address Box 45-542 care Paper Trade Journal. S-13

USED ANALINE PRINTING PRESSES wanted. Up to 15" Wide Stock. Address Box 45-507 care Paper Trade Journal. S-6

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—One Rag Cutter, in good condition. Hawley Products Canada Ltd., Brantford, Ontario, Canada. S-6

WANTED—Brightwood Box Machine. Address Box 44-836 care Paper Trade Journal. tf

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 44-835 care Paper Trade Journal tf

ROLL GRINDER WANTED—Must be in good condition. Minimum 30" diameter, 19' between centers, and take a 4" face wheel. Must have crowning attachment. FORT HOWARD PAPER COMPANY, Green Bay, Wisconsin. S-6

WANTED—Spiral Paper Tube Winder and Tube Recutter and Roll Paper Slitter and Rewinder. Address Box 45-472 care Paper Trade Journal. S-6

**WANTED—Paper Machine Dryer, Heavy Duty Pulley or Engine Flywheel 56" to 60" face, 42" to 54" diameter. Plastic Film Corporation, Plainfield, Connecticut. S-13**

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WANTED—1 or 2 cylinder paper machine to trim either 80", 90" or 96" to make light weights. Address Box 45-546 care Paper Trade Journal. S-27

WANTED—Distributors located in Sweden, Norway, Finland, Mexico, Argentina, Brazil, Chile and Australia for product used by pulp and paper mills. Write in detail. Address Box 45-557 care Paper Trade Journal. S-27

## GOVERNMENT BIDS

PROPOSALS
FOR FURNISHING
PAPER FOR THE U. S. GOVERNMENT PRINTING OFFICE

SEALED PROPOSALS will be received until 10 a.m., September 17, 1945, in the room of the Joint Committee on Printing, in the Capitol, Washington, D. C., for furnishing the paper for the public printing and binding, and blank paper for the use of the Government departments and establishments in the District of Columbia, for the term of three months, beginning October 1, 1945; deliveries to be f.o.b. Government Printing Office Warehouse, or warehouse siding, Washington, D. C. The proposals will be opened in the presence of and the award of contracts made by the Joint Committee on Printing to the lowest and best bidders for the interest of the Government whose bids are in conformity with the requirements of the proposal. The Committee reserves the right to reject any or all bids, or to accept any bid or any part and reject the other part, if, in its opinion, such action would be in the interest of the Government.

Blank proposals containing the instructions, schedules and specifications may be obtained by addressing A. E. Giegengack, Public Printer, Washington, D. C.

Contracts will be entered into for supplying the quantities required, whether more or less than the estimates, as provided in paragraph 15 of the instructions.

The approximate estimated quantities set forth in detail in the schedule comprise:

PAPER

2,500,000 pounds newsprint paper; 900,000 pounds telephone book news; 2,200,000 pounds machine-finish book paper; 3,500,000 pounds offset book paper; 100,000 pounds 50% antique book paper; 400,000 pounds supercalendered book paper; 700,000 pounds machine-coated book paper; 350,000 pounds coated book; 1,600,000 pounds mimeograph paper; 400,000 pounds duplicator copy paper; 150,000 pounds U S M O safety writing paper; 11,650,000 pounds writing paper; 2,885,000 pounds map paper; 715,000 pounds manifold paper; 3,150,000 pounds bond paper; 1,200,000 pounds ledger paper; 1,900,000 pounds index paper; 250,000 pounds cover paper; 140,000 pounds manila paper; 200,000 pounds kraft paper; 600,000 sheets white gummed paper; 250,000 pounds tag board; 130,000 sheets railroad board; 250,000 pounds tan board; 3,000,000 pounds postal card paper; 50,000 sheets red pressboard; 200,000 pounds news board; 230,000 pounds binder's board; 120,000 pounds chestnut cover board.

In cases where more than 1,000 reams are called for, proposals will be received for 1,000 reams or more.

By direction of the Joint Committee on Printing.

A. E. GIEGENGACK,
*Public Printer.*

WASHINGTON, D. C.,
*September 4, 1945.* S-13

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**The right man may be seeking a job in an advertisement in this section. The machine or the material you urgently need may be advertised right here in these columns. Read Them, Use Them—If you need something, advertise for it—If you have something to sell tell the industry about it—Everybody reads the Clearing House.**

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1—61 x 60 Midwest high speed
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1—34 x 24—good bars. Price $200.00
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1—pair E. D. Jones heavy duty
1—pair Dayton Beater heavy duty

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4—Miami #6
2—Miami #2
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2—Jones Majestic
1—Mammoth Jr.
2—Noble & Wood Monarch
1—Noble & Wood Pony
1—#2 Dillon

## JORDANS

2—Black-Clawson #2
1—Shartle Miami #2
2—Noble & Wood Mammoth Jr.
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2—Sets Bolton shell filling for Noble & Wood Monarch
Several sets Bahr Bros. shell fillings, various make jordans.

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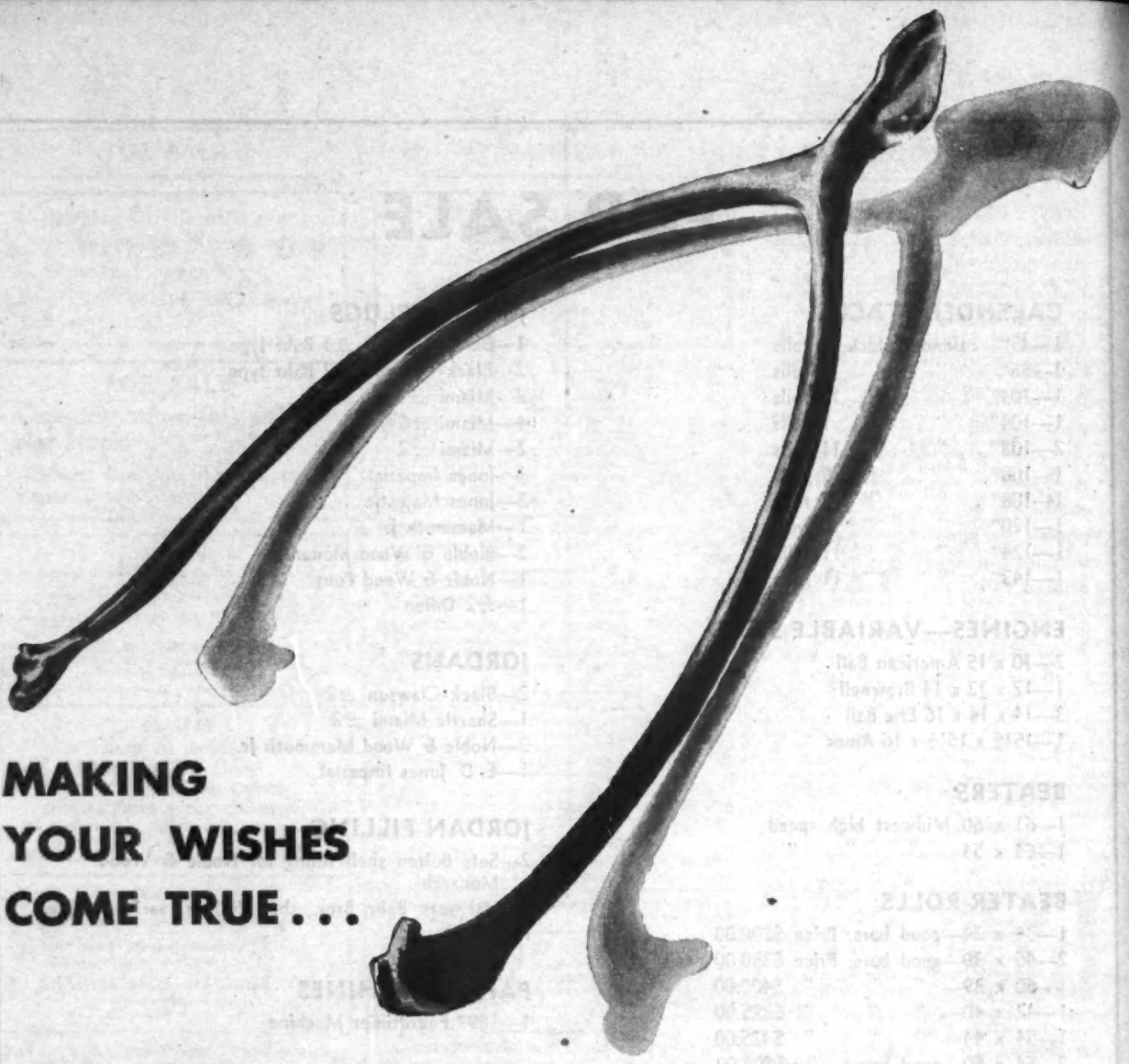
1—60" Black-Clawson uniform speed reel
1—72" Erie Layboy
14—dryers 60 x 178 with anti-friction bearings
1—116 Moore & White 4-drum winder for 60" diameter rolls
12—split & collapsible winder shafts for Moore & White winder

## SHARTLE BROTHERS MACHINE CO.

**Middletown, Ohio.** 5-6



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**CONTINUOUS BEATING:** Three No. 2 Claflins in series. Furnish of Southern Bleached Kraft — 50 tons/day. Pulping operation—through three Claflins—to beaters used only for mixing—to Jordans for final cutting control to paper machine. Total of 540 h.p. on Claflins. Freeness drop from 685 c.c. to 310 c.c.

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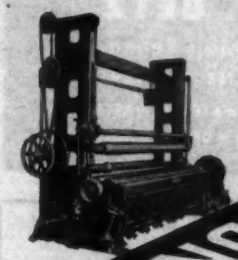

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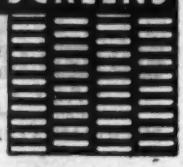

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**COMPRESSORS**
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machinery Corp.

**CONSTRUCTION ENGINEERS**
Merritt-Chapman & Scott Corp.

**CONSULTING ENGINEERS**
W. H. L. D. Betz
Frederic C. Clark
Ferguson, Hardy S.
Hardy, George P.
Johnson & Wierk, Inc.
The Kohler System Company
Main, Inc., Chas. T.
J. E. Sirrine & Co.
Stone & Webster Engrg. Corp.

**CONTROLS**
The Bristol Company

**CONVEYORS**
Black-Clawson Company
Murray, D. J. Mfg. Co.
Ross Engineering Corp., J. O.

**CORES**
Elixman Paper Co.
Sonoco Products Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Walker-Goulard-Plehn Co.

**COUPLINGS**
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
The Frederick Iron & Steel
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

**CUTTERS**
Thomas W. Hall Co.
Noble & Wood Mach. Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

**DAMPENERS**
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

**DE-INKING**
Kinsley Chemical Co.

**DIGESTERS**
H. K. Porter Company Inc.
Pusey & Jones Corp.

**DOCTORS**
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

**DOCTOR BLADES**
Black-Clawson Company
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

**DRIERS**
Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O. Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

**DRIVES**
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Horton Manufacturing Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

**DUSTERS**
Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

**DYESTUFFS**
Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

**EQUIPMENT INSTALLATION**
Merritt-Chapman & Scott Corp.

**EVAPORATORS**
Black-Clawson Company
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.
Traylor Engineering & Mfg. Co.

**FANS**
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

**FEEDERS**
Builders-Providence, Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Traylor Engineering Co.
Wallace & Tiernan

**FELTS**
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co. Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Woodward, Baldwin & Co.

**FELT GUIDES**
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

**FILLERS**
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
American Resinous Chemicals Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

**FILTERS**
Moore & White Co.
J. O. Ross Engrg. Corp.
Worthington Pump & Mchy. Corp.
Witco Chemical Co.

**FLOORING, GRATING & TREADS**
Hendrick Mfg. Co.
Norton Co.
Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

**FORMING MACHINES**
Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

# WHERE TO BUY

**GEARS**
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

**GRINDERS**
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

**GRINDING WHEELS**
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Simonds Worden White Co.
United States Rubber Co.

**HEATING, VENTILATING AND AIR CONDITIONING**
The Appleton Machine Co.
Armstrong Machine Works
Fibre Making Processes, Ind.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Worthington Pump & Mchy Corp.

**HOISTS**
Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

**HOSE (Air, Water, Suction, etc.)**
The Cincinnati Rubber Mfg. Co.
The Manhattan Rubber Manufacturing Division of Raybestos-Manhattan Inc.
United States Rubber Co.

**INSTRUMENTS, TESTING AND MEASURING**
W. H. & L. D. Betz
N. P. Bowsher
The Bristol Company
Builders-Providence, Inc.
The Foxboro Company
General Electric
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Wallace & Tiernan Co., Inc.

**JORDAN FILLINGS**
Appleton Machine Co.
Behr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

**KNIVES**
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Simonds Worden White Co.
Valley Iron Works Co.

**LABORATORY EQUIPMENT**
Appleton Machine Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Valley Iron Works Co.

**LAY BOYS**
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

**LUBRICANTS**
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

**LUBRICATORS**
Hills-McCanna Co.

**MICROMETERS & CALIPERS**
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Walker-Goulard-Plohn Co

**MIXERS**
H. K. Porter Company
Youngstown Welding & Engrg. Co.

**MOISTENING EQUIPMENT**
The Spray Engineering Co.

**MOTORS AND GENERATORS**
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

**PACKING BOXES**
Johnson Corporation
Shartle Brothers Machine Co.

**PACKING**
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
United States Rubber Co.

**PAPER MACHINES**
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester

**PAPER MACHINE SLICES**
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

**PAPERMILL BUILDERS**
Merritt Chapman & Scott Corp.

**PAPER TUBE MACHINERY**
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.

**PASTING MACHINES**
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

**PERFORATED METAL**
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

**PIPE**
Black-Clawson Company
Crane Company
Grinnell Company
Shartle Brothers Machine Co.
Taylor Forge & Pipe Works
Walworth Company
Youngstown Welding & Engrg. Co.

**PLATERS**
Perkins & Son, Inc., B. F.

**PLATES**
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

**PLUGS**
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

**PRESSES**
Black-Clawson Company
Farrel-Birmingham Co.
Dietz Machine Wks.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
Valley Iron Works Co.
Waldron Corp., John
Weber, Homer G.

**PUG MILLS**
Traylor Engineering & Mfg. Co.

**PULPS**
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gotteaman & Co., Inc.
Hof Hansson, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

**PUMPS**
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Frederick Iron and Steel Co.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
Quimby Pump Co. Div. of H. K. Porter Company, Inc.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company
Worthington Pump & Machinery Corp.

**RECOVERY SYSTEMS**
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp. J. O.
Valley Iron Works Co.

**RECTANGULAR BINS**
Traylor Engineering & Mfg. Co.

**REELS**
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

**REFINERS**
Appleton Machine Co.
Behr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J. Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

**REGULATORS**
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
The Brown Instrument Co.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric Corporation

**RESINS**
American Cyanamid & Chemical Corp.
American Resinous Chemicals Corp.
The Resinous Products & Chemical Co.

**ROLLS**
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Roebken Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Shenango-Penn Mold Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

**ROLL COVERS**
The Cincinnati Rubber Mfg. Co.
Youngstown Welding & Engrg. Co.

**ROLL STANDS**
Cameron Machine Co.
Johnstone Eng. & Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.

**ROTARY KILNS**
Traylor Engineering & Mfg. Co.

**SATURATING MACHINES**
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman C.

**SCALES**
Builders-Providence, Inc.
Merrick Scale Mfg. Co.

**SCREEN PLATES**
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Union Machine Co.
Union Screen Plate Co.

**SCREENS**
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Co.
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
Valley Iron Works Co.

**SCRUBBERS**
Traylor Engineering & Mfg. Co.

**SHEET MACHINES**
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

**SHOWER PIPES**
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

**SHREDDERS**
Bauer Brothers Co.
Carthage Machine Co.

**SIZING**
American Cyanamid & Chemical Co
American Resinous Chemicals Corp.
Black-Clawson Company
The Dow Chemical Co.
du Pont, E. I., de Nemours & Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Pioneer Salt Company
Socony-Vacuum Co.
Philadelphia Quartz Co.

**SLITTERS**
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Johnstone Eng. & Machine Co.
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

**SPRAY NOZZLES**
The Spray Engineering Co.

**STAINLESS STEEL**
Allegheny Ludlum Steel Co.
Eastern Stainless Steel Corp.
Industrial Steels, Inc.

**STARCH**
American Cyanamid & Chemical Corp.
Clinton Co.
National Starch Products, Inc.
Stein, Hall & Co., Inc.

## WHERE TO BUY

**STEAM SPECIALTIES**
Johnson Corp.
Shartle Bros. Mch. Co.
Stehli Steam Specialties Co.

**STRAPPING & STRAPPING MACHINES**
Acme Steel Company
The Stanley Works

**STUFF CHESTS**
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**SUCTION BOXES**
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Westinghouse Electric Corp.

**SULPHUR**
American Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company

**SULPHUR BURNERS**
Valley Iron Works Co.

**TALC**
American Cyanamid & Chemical Corp.
W. H. Loomis Talc Corp.
International Talc Company

**TANKS**
Frederick Mfg. Co.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc.
The Noble & Wood Machine Co.
H. K. Porter Company Inc.
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Traylor Engineering & Mfg. Co.
United States Rubber Co.
Waldron Corp., John
Youngstown Welding & Engrg. Co.

**THICKENERS, DECKERS & SAVEALLS**
Bird Machine Company
Bulkley, Dunton Pulp Co. Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

**TITANIUM**
E. I. Du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

**TOOLS**
Acme Steel Company
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

**TRUCKS**
Automatic Transportation Co.
Elwell Parker Electric Co.
Wright-Hibbard Ind. Elec. Truck Co.

**TRAPS**
Armstrong Machine Works
Crane Co.
Grinnel Company
Johnson Corporation
Shartle Bros. Mch. Co.

**TUBS**
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.

**TURBINES**
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric Corp.
Worthington Pump & Machinery Corp.

**USED EQUIPMENT**
Frank H. Davif Company
Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
Shartle Brothers Machine Co.

**VALVES**
The Bristol Company
Crane Company
Dilts Machine Works
Fibre Making Processes, Inc.
The Foxboro Company
Hills-McCanna Co.
E. D. Jones & Sons Co.
Kennedy Valve Mfg. Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Permutit Company
William Powell Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Taylor Instrument Companies
Valley Iron Works Co.
Walworth Company

**VATS & VAT PARTS**
Union Machine Co.
Union Screen Plate Co.

**WASHERS**
Bird Machine Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

**WATER CONDITIONING**
The Permutit Company

**WAXING MACHINERY**
Black-Clawson Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

**WELDING EQUIPMENT**
Allis-Chalmers Mfg. Co.
General Electric Company
Walworth Company
Westinghouse Electric Corp.

**WET MACHINES**
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Moore & White Co.
Montague Machine Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

**WINDERS AND REWINDERS**
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Johnstone Eng. & Machine Co.
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Waldron Corp., John

**WIRES**
Appleton Wire Works
Black-Clawson Company
Bulkley, Dunton Pulp Co. Inc.
Cheney Bigelow Wire Works
Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
Shartle Brothers Machine Co.

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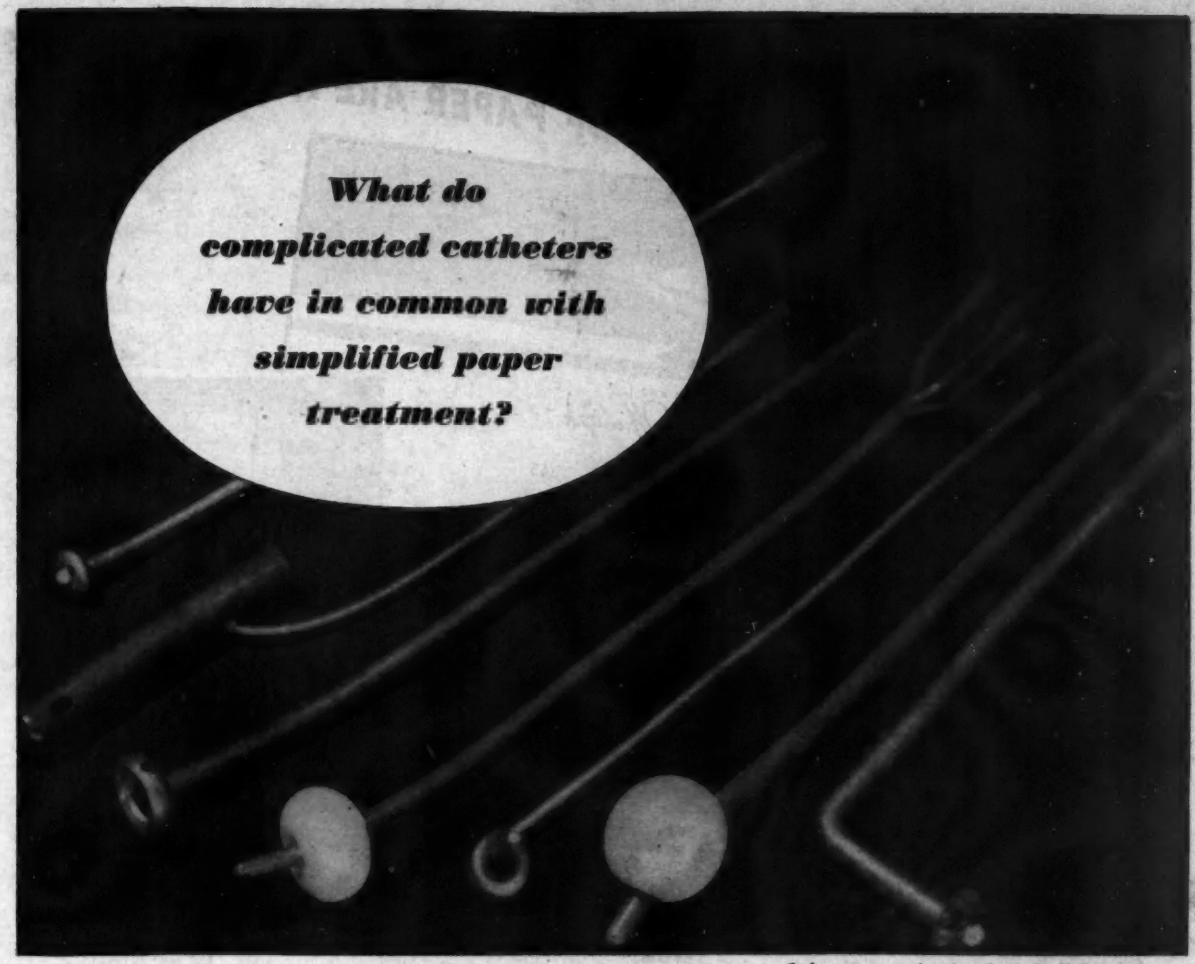


*Catheters courtesy American Cystoscope Makers, Inc.*

## *Both are made possible by AMERICAN ANODE latices, mixes, and water dispersions*

PRIOR to 1936 only the simplest catheters were possible because they had to be molded. Then, at the urging of urologists, American Anode developed a method of making the most complicated surgical tubing—*using an American Anode latex dip process*—that opened entirely new fields of medical treatment.

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*For more information about American Anode rubber and plastics water dispersions for impregnating, coating, and cementing, please write American Anode, Inc., 60 Cherry Street, Akron, Ohio.*

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INCORPORATED
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# ★ SAVES TIME
# AS HEAVY SKID LOADS OF PAPER ARE HANDLED

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DELIVERY DISTRICT NO. 6

April 16, 1945

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We have found this Transporter satisfactory in every sense of the word. Formerly we used four to five men to load skids into a semi-trailer. Now one man with our Transporter does this work.

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Martin F. Oom

Mart Oom
Traffic Manager

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